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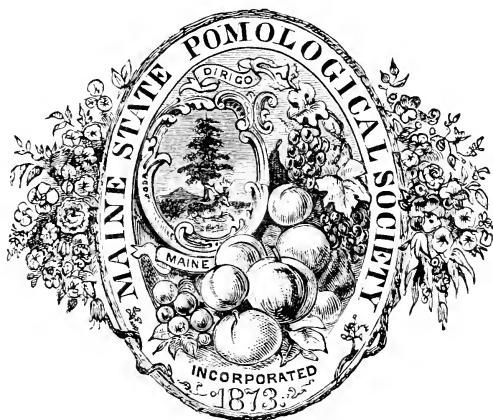
TRANSACTIONS

OF THE

Maine State Pomological Society,

FOR THE YEAR 1890.

Including the Proceedings of the Union Winter Meeting held in
City Hall, Bangor, February 24th and 25th, 1891.



EDITED BY THE SECRETARY,

D. H. KNOWLTON.

AUGUSTA, MAINE:
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EMAREL

Indeed, the orchard, more than almost any other thing, tends to soften and humanize the country, and give the place of which it is an adjunct a settled domestic look.

—John Burroughs.

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MAINE STATE POMOLOGICAL SOCIETY.

Transactions for the Year 1890-91.

INTRODUCTORY.

Gradually as people realize that fruit growing is becoming a source of profit to those who are engaged in it, there are many evidences of renewed interest in all that pertains to the industry. In recent years there have been unusual attractions offered to men and capital to remove to distant states, and for the time being the grand opportunities for profitable fruit culture in Maine were overlooked. The past few years the liberal returns from fruit enterprises in the State ought to satisfy the most incredulous of certain returns for well directed labor and the investment of capital in fruit growing. It is certain that no other agricultural industry can point to such profit as our leading fruit growers are receiving. It is gratifying to note that our farmers are realizing more and more that fruit growing does pay. While some are groping in the darkness, as it were, and suffering from a lack of practical knowledge in growing and handling fruits successfully, many are seeing the light ahead and are making great progress. It has been the special effort of the officers of this Society to extend, so far as possible, a knowledge of the best methods of fruit culture, and further to point out the possibilities Maine offers to all who may choose to avail themselves of them. The present volume, in some measure, will illustrate the general work of the Society. Special attention, however, is invited to so much of the contents as set forth the practices of some of our most successful fruit growers, and also to the profitable results already reached in fruit culture.

The year 1890 was not a fruit season. The trees blossomed generally quite full but over a large part of the State little fruit was

set, and that which did mature was of inferior quality, being infested with worms and more or less injured by the scab. Some localities were more favored, and while there was less than an average crop and more inferior fruit, the high price of fruits brought more than the average receipts. This was especially true in parts of Kennebec, Franklin, Androscoggin and Oxford counties. Buyers came early, and the first price made for average No. 1 fruit was from three dollars to four dollars per barrel, while later in the season the choicest No. 1 Baldwins sold in Boston as high as six dollars, and the Northern Spy in several instances brought eight dollars per barrel. There was an unusual demand for evaporated and canned fruit, and all the apples that were not considered good enough to sell in a green state found their way to market at a profit to the grower. In some instances the best evaporated apples have sold as high as sixteen to eighteen cents per pound. Where fruit was largely evaporated or canned, the parings and cores found a market at a paying price. The season was an exceptionally favorable one for the growth of the trees. The winter of 1890-1, however, was one of unusual severity, and the Baldwin and some of the tender varieties were injured in consequence.

It is exceedingly surprising that more small fruits are not raised in the State. As yet our growers are unable to supply the local markets. The rule is that growers find the industry profitable and are planting more extensively. Of raspberries and blackberries there has been a large increase in the number of plots. There is just enough of this sort of fruit growing done to indicate that those who engage in it more largely are going to realize results from Maine lands never dreamed of before.

The officers of the society have endeavored to use their influence to secure for the fruit growers of the State all that the importance of the industry demands. The Executive Committee urged upon the officers of the State College the desirability of so extending their work at the college and experiment station as to give the interests of horticulture greater prominence. It was also their pleasure to urge His Honor, Governor Burleigh, in behalf of Maine fruit growing to recommend an appropriation in his annual message for the World's Columbian Fair. Later, in the interests of the fruit growers, the president and secretary joined with the representatives of other agricultural organizations and attended a hearing of the State College trustees in Bangor. During the session of the last legislature

they also appeared with others before the Committee on Agriculture, asking for larger appropriations for institute work and the Secretary of the Board of Agriculture. In each instance, the objects sought were gained, and, as a result, we may expect more extensive training in horticulture at the college; and the undivided attention of the Secretary of the Board of Agriculture with larger appropriations for the purpose will secure a better representation of fruit industries at the farmers' institutes in various parts of the State.

There has been about the usual increase in the membership of the Society. The treasurer's report does not show any increase in the permanent fund, as the State aid was not received until after the report was made up. The fund however, will be increased during the present year and the Society's debt to the fund will be reduced thereby. The Executive Committee, in view of the fact that the permanent fund should be made to yield the largest revenue possible to the Society, directed the treasurer to purchase four shares in the First National Bank of Farmington at par, which was being organized at the time. This investment is a conservative and safe one and will prove more profitable than a deposit in any of our savings banks.

The various newspapers in the State are among the most efficient agencies in securing the rights of the people and in promoting the interests of every industry. The secretary, in behalf of the Society, wishes to acknowledge the valuable aid they have rendered the interests of fruit culture. They have freely published our notices, and given liberal space for the reports of our meetings.

Our Society is a general organization, whose object is to promote the interests of pomology in all parts of the State. It is not local in any sense. The premiums it offers are open to all parts of the State; its winter meetings are held in localities where the most can be accomplished for the cause, and its transactions are available for all. Again, we urge fruit growers to send us items of interest bearing on fruit culture. The more we know of their successes and failures the better able we shall be to render them efficient service. It is the purpose of the officers to do all they can with the means at their disposal. If in any way the Society can do more to promote the industry, the officers of the Society are its servants.

D. H. K.

OFFICERS FOR 1891.

President.

CHARLES S. POPE, Manchester.

Vice Presidents.

S. H. DAWES, Harrison.

O. C. NELSON, New Gloucester.

Secretary.

D. H. KNOWLTON, Farmington.

Treasurer.

A. S. RICKER, Turner.

Executive Committee.

The President and Secretary, *ex-officio*; H. W. Brown, Newburg; A. E. Andrews, Gardiner; J. W. True, New Gloucester.

Trustees.

Androscoggin County,	I. T. Waterman, East Auburn.
Aroostook	" J. W. Dudley, Castle Hill.
Cumberland	" S. R. Sweetser, Cumberland Centre.
Franklin	" M. C. Hobbs, West Farmington.
Hancock	" F. H. Moses, Bucksport.
Kennebec	" E. A. Lapham, Pittston.
Knox	" Elmas Hoffses, Warren.
Lincoln	" H. J. A. Simmons, Waldoboro'.
Oxford	" C. H. George, South Paris.
Penobscot	" C. A. Arnold, Arnold.
Piscataquis	" H. L. Leland, East Sangerville.
Sagadahoc	" H. S. Cary, Topsham.
Somerset	" James S. Hoxie, North Fairfield.
Waldo	" Alonzo Butler, Union.
Washington	" L. S. Allen, Dennysville.
York	" B. F. Pease, Cornish.

Member of Experiment Station Council.

D. H. Knowlton, Farmington.

Committee on Nomenclature.

Z. A. Gilbert, North Greene; D. P. True, Leeds Centre; C. M. Weston, Belgrade.

Committee on New Fruits.

D. H. Knowlton, Farmington; L. H. Blossom, Turner; J. W. True, New Gloucester.

MEMBERS OF THE SOCIETY.

NOTE—Any errors or changes of residence should be promptly reported to the Secretary. Members will also confer a favor by furnishing the Secretary with their full Christian names where initials only are given.

LIFE MEMBERS.

Andrews, A. Emery.....	Gardiner	*Harris, N. C.....	Auburn
Andrews, Charles E.....	Auburn	Harris, N. W.....	Auburn
*Atherton, H. N.....	Hallowell	Harris, William M.....	Auburn
Atherton, Wm. P.....	Hallowell	Harvey, F. L.....	Orono
Atkins, Charles G.....	Bucksport	*Hersey, T. C.....	Portland
Atwood, Fred.....	Winterport	Hobbs, M. Curtis.....	West Farmington
Averill, David C.....	Temple	Hoffses, Elmas.....	Warren
Bennoch, John E.....	Orono	Hoxie, James S.....	North Fairfield
Boardman, Samuel L.....	Augusta	Hoyt, Mrs. Francis.....	Winthrop
Briggs, D. J.....	South Turner	Ingalls, Henry.....	Wiscasset
Briggs, John.....	Turner	Jackson, F. A.....	Winthrop
Burr, John.....	Freeport	*Jewett, George.....	Portland
Butler, Alonzo.....	Union	Johnson, Isaac A.....	Auburn
Carter, Otis L.....	Etna	Jordan, Francis C.....	Brunswick
Chase, Henry M.....	North Yarmouth	Kenniston, E. H.....	Arnold
Chase, Martin V. B.....	Augusta	Knowlton, D. H.....	Farmington
*Clark, Eliphalet.....	Portland	Lapham, E. A.....	Pittston
Cole, Horatio G.....	Boston, Mass	Lombard, Thurston M.....	Auburn
Crafts, Moses.....	Auburn	Low, Elijah.....	Bangor
*Crosby, William C.....	Bangor	Low, S. S.....	Bangor
Dana, Woodbury S.....	Portland	McLaughlin, Henry.....	Bangor
Dawes, S. H.....	Harrison	Merrill, T. M.....	West Gloucester
DeRoche, Peter.....	Bradentown, Fla.	*Metcalf, M. J.....	Monmouth
Dirwanger, Joseph A.....	Portland	Moody, Charles H.....	Turner
Dunham, W. W.....	North Paris	Moore, William G.....	Monmouth
Dyer, Milton.....	Cape Elizabeth	Moor, F. A.....	Waterville
*Emerson, Albert.....	Bangor	Morton, J. A.....	Bethel
Emerson, Charles L.....	South Turner	Morton, William E.....	Portland
Farnsworth, B. B.....	Portland	*Noyes, Albert.....	Bangor
Frost, Oscar F.....	Monmouth	Perley, Chas. I....	Seward's (Vassalboro')
*Gardiner, Robert H.....	Gardiner	Pope, Chas. S.....	Manchester
Gardiner, Robert H.....	Boston, Mass	Pulsifer, D. W.....	Poland
George, C. H.....	Hebron	Purington, E. F.....	West Farmington
Gilbert, Z. A.....	North Greene	*Richards, F. G.....	Gardiner
*Godfery, John E.....	Bangor	Richard, John T.....	Gardiner
Hackett, E. C.....	West Gloucester	*Richardson, J. M.....	Gardiner
Hanscom, John.....	Saco	Ricker, A. S.....	Turner
Harlow, S. C.....	Bangor	Roak, George M.....	Auburn

*Deceased.

LIFE MEMBERS—CONCLUDED.

Robinson, Henry A	Foxcroft	Sweetser, S. R.....	Cumberland Center
Rolfe, Samuel	Portland	*Taylor, Joseph.....	Belgrade
Sawyer, Andrew S.....	Cape Elizabeth	Taylor, Miss L. L....	(Lakeside) Belgrade
Sawyer, George B.	Wiscasset	Thomas, William W., Jr.....	Portland
Shaw, Stillman W	West Auburn	Tilton, William S.....	Boston, Mass.
Simmons, H. J. A.....	Waldoboro'	True, Davis P.....	Leeds Center
*Smith, Alfred	Monmouth	Varney, James A.....	The Dalles, Oregon
Smith, Henry S.	Monmouth	Vickery, James	Portland
Starrett, L. F.	Warren	Vickery, John.....	Auburn
Stetson, Henry	Auburn	Wade, Patrick.....	Portland
*Stetson, Isaiah.....	Bangor	Waterman, Willard H.....	East Auburn
Stilphen, Asbury C....	Gardiner	*Weston, James C.....	Bangor
Stanley, Charles	Winthrop	Wharff, Charles S.....	Gardiner
Stanley, O. E.....	Winthrop	Whitney, Edward K	Harrison
Staples, G. K.....	Temple	Woodard, Mrs. S. M.....	Gardiner
Strout, S. F	West Falmouth	Woodman, George W.....	Portland
Strattard, Mrs. A. B	Monroe		

ANNUAL MEMBERS, 1890.

Abbott, Farrington.....	Auburn	Larrabee, O. L.	West Levant
Arnold, C. A	Arnold	Libbey, W. M.....	North Gorham
Bartlett, B. W.....	East Dixmont	Nelson, O. C.....	Upper Gloucester
Bartlett, M. E	East Dixmont	Nowell, F. E.....	Fairfield
Beals, Miss Laura B.....	Turner	Nutting, James....	East Perham
Blossom, L. H.....	Turner Center	Perkins, L. J.....	Portland
Brown, Henry W.....	Newburg	Pike, George A.	Winthrop
*Butler, B. F.....	Mt. Vernon	Ridley, B. H	Jay
*Cary, Henry S.....	Topsham	Ring, A. P.....	Richmond
Chandler, Lucy A.....	Freeport	Ring, Miss Cora E.....	Richmond
Chase, George C.....	Lewiston	Scribner, S. B	Lewiston
Davis, Jacob L.....	New Gloucester	Stanley, Cora H.....	Winthrop
Dudley, Allen.....	Mapleton	Timberlake, S. H....	North Turner Bridge
Dudley, J. W.....	Castle Hill	Towle, J. J	South Carthage
Dunbar, E. W.....	Damariscotta	True, J. W.....	New Gloucester
Dunton, John.....	Lewiston	Walker, Charles S.....	Peru
Eastman, E. E.	Dexter	Waterman, Mrs. E. D	East Auburn
Gurney, Lemuel	Hebron	Weston, C. M.....	Belgrade
Hathaway, W. S.....	East Auburn	Whittier, Phineas.....	Farmington Falls
Hawkins, M. P.....	Auburn	Wright, Fred.....	Bath

ANNUAL MEMBERS, 1891.

Allen, W. H.....	Augusta	Merritt, E. W	Houlton
Ballentine, Walter	Orono	Munson, W. M.....	Orono
Cook, Elijah.....	Manchester	Nelson, O. C	Upper Gloucester
Coombs, Philip.....	Bangor	True, J. W	New Gloucester
Crosby, Mary G.....	Bangor	Wheeler, Joseph.....	Corinth

ANNUAL MEMBER, 1892-3.

Allen, W. H	Augusta
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*Deceased.

Annual Statement of the Maine State Pomological Society for the Year Ending Dec. 31, 1890.

RECEIPTS.

Amount in treasury December 31, 1889.....	\$ 99 05	
Cash from State Treasurer, bounty for 1889	500 00	
Agricultural Society for 1890	500 00	
Manufacturers' National Bank note	250 00	
life members.....	50 00	
annual members.....	44 00	
State for winter meeting	6 20	
interest on permanent fund.....	16 96	
overpaid by Treasurer.....	4 90	
		<hr style="width: 100px; margin-left: 0;"/> \$1,471 11

EXPENDITURES.

Cash paid Secretary's salary, 1889 and 1890	\$225 00	
expenses, 1890	55 90	
clerk	9 90	
for expenses of executive committee.....	105 73	
Knowlton, McLeary & Co	33 49	
Smith and Reid for 1888 and 1889.....	16 34	
Geo B. Sawyer	26 65	
C. H. George.....	8 00	
A. S. Ricker, expenses	15 65	
Mrs. H. C. Beedy, winter meeting.....	5 40	
C. M. Weston, "	6 20	
F. L. Harvey, " etc	16 25	
Dr. C. D. Smith.....	15 00	
premiums... ..	8 00	
Stecher Lithographic Company	10 50	
Harry Stanley.....	2 07	
John W. Perkins & Co	3 73	
Lewiston Journal	1 75	
Wiscasset Savings Bank, interest in favor of perma- nent fund.... ..	16 96	
Manufacturers' National Bank note	250 00	
interest and discount on the above	5 09	
premiums for 1890.....	633 50	
		<hr style="width: 100px; margin-left: 0;"/> \$1,471 11

FINANCIAL CONDITION OF THE SOCIETY DECEMBER 31, 1890.

ASSETS.

Due from State treasurer bounty for 1890	\$500 00	
Property owned by the Society, estimated	150 00	
Permanent fund, First National Bank, Farmington.....	400 00	
Permanent fund, Wiscasset Savings Bank.....	57 68	
	<u> </u>	\$1,107 68

LIABILITIES.

Due Manufacturers' National Bank	\$250 00	
from treasurer (overpaid).....	4 90	
	<u> </u>	\$254 90

PERMANENT FUND.

CREDIT.

By fees of 100 life members to Dec 31, 1889.....	\$1,000 00	
5 " Dec. 31, 1890.....	50 00	
	<u> </u>	\$1,050 00

DEBIT.

To amount in stock in Farmington National Bank stock.....	\$400 00	
deposit Wiscasset Savings Bank	57 68	
balance due permanent fund.....	592 32	
	<u> </u>	\$1,050 00

A. S. RICKER, TREASURER.

TURNER, February 17, 1891.

This certifies that we have examined the foregoing accounts of
A. S. Ricker, Treasurer, for 1890, and find the same correct.

C. S. POPE,	} <i>Executive</i> <i>Committee.</i>
D. H. KNOWLTON,	
H. W. BROWN,	
J. W. TRUE,	

Maine State Pomological Society.

Report of the Eighteenth Annual Exhibition Held in Lewiston, September 9, 10, 11 and 12, 1890.

The members of our Society have in recent years been so well pleased with the exhibition arrangements made with the Maine State Agricultural Society, that the executive officers again decided to unite with that Society. The eighteenth annual exhibition was accordingly held in the exhibition hall of the State Fair Park, Lewiston, September 9, 10, 11 and 12, 1890. The officers of the two Societies acted together in all matters of common interest, and the pleasantest of relations continued from first to last. The place of exhibition is not an ideal for that purpose, but in view of the fact that our fruit and floral displays form an important part of a great fair, which is attended by many thousand people, it seems best to join with them in making up a grand exhibition of Maine agriculture. Nor is the time of holding the fair the most favorable for fruit industries, for our fruit does not reach its full maturity with the exception of the earliest varieties until several weeks later. But our Society has only limited means available for exhibition purposes, hence it becomes necessary to make such arrangements as we can with other bodies.

Reports from various parts of the State before the fair indicated that the fruit display would be small and of inferior quality. Many localities famous for fine fruit were hardly represented at all; but where there was good fruit special effort was taken by growers to bring in the best they had. As a result the tables were well filled, though it was noticeable by all that our usual standard of excellence was not reached. The fruit was of fair size and well colored, but there were few specimens not affected by either scab or worms.

The pears shown were of good quality, and the interest shown in this part of the exhibition clearly indicates that the people of Maine are realizing that they can raise their own pears. There were fine specimens of plums, though not as many varieties as sometimes shown.

There was an unusually large and effective display of flowers and plants. These were arranged by President Pope and his assistants with great taste, and the exhibition as a whole was well arranged and attractive to visitors. During the first day the storm clouds burst over the fair grounds and at intervals the rain poured down through the week. This kept many from bringing in exhibits and very materially reduced the number of visitors.

There were several collections of fruit from Aroostook county. It is gratifying to note that gradually more fruit is being produced there. The specimens were not large, but some were of good size and quality. It is especially pleasant to the members of our society to welcome Aroostook people among our exhibitors.

There were insufficient assurances for us to announce in advance that the Hon. Henry E. Van Deman, Pomologist of the Agricultural Department was expected, but this only made his presence all the more agreeable when he actually arrived among us. The fruit-growers of the State were delighted to meet him, and to welcome him to the Pine Tree State. About the fruit tables he rendered efficient service in the identification of varieties, and freely imparted to all any information he possessed. He expressed himself as agreeably disappointed with the quality of our fruit, and did not hesitate to assure us that fruit growing ought to be more generally extended in the State. At our evening meeting Mr. Van Deman gave the fruit growers a valuable lecture on the industry and the work of his department. We only regret that more of our fruit growers did not meet him while here. Since meeting with us he has shown an active interest in all that affects the industry in the State and heartily co-operates with us in every effort to promote it. His visit will be remembered with pleasure by the officers especially, who will be delighted to meet him or any of his official associates in Maine hereafter.

List of Premiums Awarded at the Eighteenth Exhibition, 1890.

APPLES—General Collections.

Best general exhibition of apples grown by the exhibitor in any part of the State: S. H. Dawes, Harrison, \$15; F. E. Nowell, Fairfield, \$10.

COUNTY EXHIBITIONS.

Best general exhibition of apples grown by the exhibitor in Androscoggin county: D. J. Briggs, South Turner, \$8; D. P. True, Leeds Centre, \$6; John Dunton, Lewiston, \$4.

For same in Aroostook county: Allen M. Dudley, Mapleton, \$8; James Nutting, East Perham, \$6.

For same in Cumberland county: S. R. Sweetser, Cumberland Centre, \$8; J. W. True, New Gloucester, \$6.

For same in Franklin county: M. C. Hobbs, West Farmington, \$8; B. H. Ridley, Jay, \$6; D. C. Averill, Temple, \$4.

For same in Kennebec county: H. G. Fairbanks, Mcnmouth, \$8; E. A. Lapham, Pittston, \$6; C. I. Perley, Cross Hill, \$4.

For same in Knox county: Alonzo Butler, Union, \$8.

For same in Lincoln county: E. W. Dunbar, Damariscotta, \$8.

For same in Oxford county: C. H. George, South Paris, \$8; Lemuel Gurney, Hebron, \$6.

For same in Penobscot county: C. A. Arnold, Arnold, \$8; O. L. Larrabee, West Levant, \$6; E. H. Kenniston, Arnold, \$4.

For same in Sagadahoc county: H. S. Cary, Topsham, \$8; Fred Wright, Bath, \$6; A. P. Ring, Richmond, \$4.

For same in Somerset county: J. S. Hoxie, North Fairfield, \$8.

For same in Waldo county: D. W. Bartlett, East Dixmont, \$8; M. E. Bartlett, East Dixmont, \$6; Mrs. A. B. Strattard, Monroe, \$4.

For best collection crab apples, J. S. Hoxie, Fairfield, \$1.

SPECIAL PREMIUMS.

For best dish of Baldwins, Gravensteins, Rhode Island Greenings, Roxbury Russets, King of Tompkins County, consisting of twelve specimens each.

Baldwins: S. H. Dawes, Harrison, \$5; J. W. True, New Gloucester, \$3; C. I. Perley, Cross Hill, \$2.

Gravenstein: O. L. Larrabee, West Levant, \$5; A. S. Ricker, Turner, \$3; J. W. True, New Gloucester, \$2.

Rhode Island Greening: S. R. Sweetser, Cumberland Centre, \$5; E. A. Lapham, Pittston, \$3; W. S. Hathaway, East Auburn, \$2.

Roxbury Russets: C. A. Arnold, Arnold, \$5; Lemuel Gurney, Hebron, \$3; F. E. Nowell, Fairfield, \$2.

King of Tompkins County: S. H. Dawes, Harrison, \$5; C. H. George, South Paris, \$3; D. J. Briggs, South Turner, \$2.

SINGLE VARIETIES.

Alexander: M. C. Hobbs, \$1; F. E. Nowell, 50c.; American Golden Russet; A. K. Bickford, \$1; F. E. Nowell, 50c.

Ben Davis: Thurston M. Lombard, \$1; Alonzo Butler, 50c.

Benoni: C. H. George, \$1; J. S. Hoxie, 50c.

Deane: B. H. Ridley, \$1; J. S. Hoxie, 50c.

Duchess of Oldenburg: S. H. Dawes, \$1; H. G. Fairbanks, 50c.

Early Harvest: B. H. Ridley, \$1; James Bickford, 50c.

Fallawater: C. I. Perley, \$1; O. L. Larrabee, 50c.

Fall Harvey: C. H. George, \$1; S. H. Timberlake, 50c.

Fameuse: S. R. Sweetser, \$1; Alonzo Butler, 50c.

Garden Royal: E. G. Woodside, \$1; S. H. Dawes, 50c.

Grimes Golden: W. M. Libby, \$1; Alonzo Butler, 50c.

Hubbardston Nonsuch: S. H. Dawes, \$1; C. I. Perley, 50c.

Jewett's Fine Red: S. H. Dawes, \$1; Geo. A. Pike, 50c.

King Sweeting: Geo. A. Pike, \$1; F. E. Nowell, 50c.

Large Yellow Bough: A. K. Bickford, \$1; Alonzo Butler, 50c.

Milding: C. I. Perley, \$1.

Munson Sweet: S. R. Sweetser, \$1; E. W. Dunbar, 50c.

Northern Spy: S. H. Dawes, \$1; S. R. Sweetser, 50c.

Peck's Pleasant: J. S. Hoxie, \$1; H. G. Fairbanks, 50c.

Porter: John Dunton, \$1; D. P. True, 50c.

- Pound Sweet: S. H. Dawes, \$1; C. I. Perley, 50c.
 President: I. T. Waterman & Son, \$1; F. E. Nowell, 50c.
 Primate: J. S. Hoxie, \$1; C. I. Perley, 50c.
 Pumpkin Sweet: H. S. Cary, \$1. B. H. Ridley, 50c.
 Red Astrachan: S. R. Sweetser, \$1; B. H. Ridley, 50c.
 Red Canada: C. A. Arnold, 50c.
 Rolfe: S. R. Sweetser, \$1.
 Russell: D. C. Averill, \$1.
 Stark: A. K. Bickford, \$1; E. F. Purington, 50c.
 Somerset: F. E. Nowell, \$1; S. R. Sweetser, 50c.
 Starkey: C. I. Perley, \$1; J. Hoxie, 50c.
 Talman's Sweet: W. M. Libby, \$1; C. I. Perley, 50c.
 Tetofsky: D. H. Knowlton, \$1; S. H. Dawes, 50c.
 Wagener: S. H. Dawes, \$1; W. M. Libby, 50c.
 Wealthy: S. R. Sweetser, \$1; A. K. Bickford, 50c.
 Williams' Favorite: H. S. Cary, \$1; J. S. Hoxie, 50c.
 Winthrop Greening: H. G. Fairbanks, \$1; F. E. Nowell, 50c.
 Yellow Bellflower: J. H. Merrow, \$1; D. H. Knowlton, 50c.
 Yellow Transparent: E. F. Purington, \$1; B. H. Ridley, 50c.

PEARS—General Exhibition.

- S. H. Dawes Harrison, \$10; C. M. Weston, Belgrade, \$8; L. J. Perkins, Portland, \$5.

SINGLE VARIETIES.

- Clapp's Favorite: S. H. Dawes, \$5; A. S. Ricker, \$3.
 Bartlett: A. S. Ricker, \$5; S. H. Dawes, \$3.
 Belle Lucrative: Alonzo Butler, \$1; E. G. Woodside, 50c.
 Beurre d'Anjou: S. H. Dawes, \$1; C. H. George, 50c.
 Beurre Hardy: E. M. Leavitt, \$1.
 Beurre Superfin: D. P. True, \$1; S. H. Dawes, 50c.
 Beurre Diel: D. J. Briggs, \$1; I. W. Emerson, 50c.
 Buffum: D. P. True, \$1; S. H. Timberlake, 50c.
 Duchess d'Angouleme: S. H. Dawes, \$1; Geo. C. Chase, 50c.
 Doyenne Boussock: I. W. Emerson, \$1; C. I. Perley, 50c.
 Eastern Belle: J. S. Hoxie, \$1.
 Flemish Beauty: E. F. Purington, \$1; C. I. Perley, 50c.
 Fulton: L. J. Perkins, \$1.
 Glout Morceau: D. J. Briggs, \$1.

Goodale: C. I. Perley, \$1.

Howell: C. I. Perley, \$1; S. H. Dawes, 50c.

Lawrence: S. H. Dawes, \$1; John Dunton, 50c.

Louise Bonne de Jersey: S. H. Dawes, \$1; E. M. Leavitt, 50c.

Nickerson: Geo. A. Pike, \$1.

Seckel: D. J. Briggs, \$1; E. F. Purington, 50c.

Sheldon: S. H. Dawes, \$1; I. W. Emerson, 50c.

Swan's Orange: J. S. Hoxie, \$1; C. I. Perley, 50c.

Souvenir du Congres: L. H. Blossom, \$1.

Urbaniste: D. J. Briggs, \$1.

PLUMS—General Exhibitions.

S. H. Dawes, Harrison, \$6; John Dunton, Lewiston, \$4; E. W. Dunbar, Damariscotta, \$2.

SINGLE VARIETIES.

Bavay's Green Gage: D. P. True, \$1.

Bradshaw: Lemuel Gurney, \$1.

Coe's Golden Drop: C. H. George, \$1.

Green Gage: Mrs. James Dunning, \$1; D. H. Knowlton, 50c.

Prince's Imperial Gage: S. H. Timberlake, \$1; C. H. George, 50c.

Purple Gage: E. W. Dunbar, \$1; D. P. True, 50c.

Red Gage: F. E. Nowell, \$1; D. P. True; 50c.

General Hand: F. E. Nowell, \$1.

Jefferson: J. W. True, \$1.

Lawrence: C. H. George, \$1; D. P. True, 50c.

Lombard: C. H. George, \$1; D. P. True; 50c.

McLaughlin: D. P. True, \$1; Mrs. James Dunning, 50c.

Moore's Arctic: Thurston M. Lombard, \$1; Mrs. James Dunning, 50c.

Niagara: E. W. Dunbar, \$1;

Smith's Orleans: T. M. Lombard, \$1; E. W. Dunbar, 50c.

Washington: E. F. Purington, \$1; J. S. Hoxie, 50c.

Yellow Egg: Lemuel Gurney, \$1; J. W. True, 50c.

Greely: Dr. Samuel Rolfe, \$1; S. R. Sweetser, 50c.

Guui: John Dunton, \$1.

GRAPES—Single Varieties.

Muscadine: B. H. Ridley, \$1.

Blood Seedling: B. H. Ridley, 50c.

MISCELLANEOUS ARTICLES—Canned Fruit, Preserves, &c.

Best dish of peaches: S. H. Dawes, \$2; Chas. S. Libby, \$1.

Snyder Blackberries: L. H. Blossom, \$1.

Cultivated Cranberries: B. F. Butler, \$2; D. J. Briggs, \$1.

Collection nursery stock: D. P. True, \$5.

Collection canned fruits, etc.: Mrs. E. D. Waterman, \$8; Mrs. C. L. Emerson, \$5; Mrs. W. H. Waterman, \$3.

Canned blackberries: Myrtie V. Averill, 50c.; D. P. True, 25c.

Canned blueberries: Mrs. W. H. Waterman, 50c.; Mrs. E. D. Waterman, 25c.

Canned cherries: Mrs. W. H. Waterman, 50c.; Mrs. E. D. Waterman, 25c.

Canned gooseberries: A. A. Eastman, 50c.; Mrs. D. P. True, 25c.

Canned peaches: Mrs. E. D. Waterman, 50c.; Mrs. Francis Hoyt, 25c.

Canned plums: A. A. Eastman, 50c.; Mrs. E. D. Waterman, 25c.

Canned quinces: Mrs. W. H. Waterman, 50c.; Mrs. Francis Hoyt, 25c.

Canned raspberries: A. A. Eastman, 50c.; Mrs. E. D. Waterman, 25c.

Canned strawberries: Mrs. D. P. True, 50c.; Mrs. Francis Hoyt, 25c.

Canned tomatoes: Mrs. Francis Hoyt, 50c.; Mrs. W. H. Waterman, 25c.

Canned pears: Myrtie V. Averill, 50c.

Canned currants: A. A. Eastman, 50c.

Preserved apples: Myrtie V. Averill, 50c.; Mrs. W. H. Waterman, 25c.

Preserved currants: Miss E. B. Butler, 50c.; Mrs. W. H. Waterman, 25c.

Preserved cherries: Mrs. D. P. True, 50c.; Mrs. Francis Hoyt, 25c.

Preserved pears: Mrs. E. D. Waterman, 50c.; Mrs. Francis Hoyt, 25c.

Preserved plums: Mrs. D. P. True, 50c.; Mrs. W. H. Waterman, 25c.

Preserved quinces : Mrs. W. H. Waterman, 50c.

Preserved raspberries : Mrs. W. H. Waterman, 50c. ; Mrs. D. P. True, 25c.

Preserved strawberries : Mrs. W. H. Waterman, 50c ; Mrs. D. P. True, 25c.

Assorted pickles : Mrs. E. A. Lapham, 50c. ; Mrs. Francis Hoyt, 25c.

Tomato catsup : Mrs. Francis Hoyt, 50c. ; Mrs. W. H. Waterman, 25c.

Collection apple jellies : Mrs. W. H. Waterman, \$2.

Apple jelly : Miss E. B. Butler, 50c. ; Mrs. C. L. Emerson, 25c.

Currant jelly : Mrs. E. D. Waterman, 50c. ; Mrs. Francis Hoyt, 25c.

Grape jelly : Mrs. Francis Hoyt, 50c. ; Mrs. W. H. Waterman, 25c.

Quince jelly : Mrs. Francis Hoyt, 50c. ; Mrs. W. H. Waterman, 25c.

Raspberry jelly : Mrs. C. L. Emerson, 50c. ; Mrs. E. D. Waterman, 25c.

Rhubarb jelly : Mrs. C. L. Emerson, 50c. ; Mrs. W. H. Waterman, 25c.

Strawberry jelly : Mrs. Francis Hoyt, 50c. ; Mrs. W. H. Waterman, 25c.

Maple syrup : Myrtie V. Averill, 50c. ; Lemuel Gurney, 25c.

Evaporated apples : J. J. Towle, \$2.

CUT FLOWERS.

Best display cut flowers : Chas. S. Walker, Peru, \$10 ; Mrs. Chas. Stanley, Winthrop, \$8 ; Miss Cora E. Ring, \$5 ; Mrs. A. B. Strattard, \$3.

Exhibition roses : John Burr, \$5.

Dahlias : Chas. S. Walker, \$2 ; Mrs. Chas. Stanley, \$1.

Chinese pinks : Chas. S. Walker, \$1 ; Mrs. Chas. Stanley, 50c.

Carnations : John Burr, \$2.

Lilies : Mrs. Chas. Stanley, \$2 ; Chas. S. Walker, \$1.

Asters : Chas. S. Walker, \$1 ; Master E. C. Pope, 50c.

Pansies : Mrs. Chas. Stanley, \$1 ; S. B. Scribner, 50c.

Zinnias : Mrs. Francis Hoyt, \$1 ; Mrs. Chas. Stanley, 50c.

Phlox Drummondii : Mrs. Chas. Stanley, \$1 ; Master E. C. Pope, 50c.

- Stocks: Mrs. Chas. Stanley, \$1; Mrs. G. K. Staples, 50c.
Balsams: Mrs. W. H. Waterman, \$1; E. C. Pope, 50c.
Petunias: Mrs. E. D. Waterman, \$1; Mrs. A. B. Strattard, 50c.
Gladioli: Chas. S. Walker, \$2; Lucy A. Chandler, \$1.
Verbenas: S. B. Scribner, \$2; Chas. S. Walker, \$1.
Calendula: Mrs. D. H. Knowlton, \$1; E. C. Pope, 50c.
Nasturtiums: E. C. Pope, \$1; S. B. Scribner, 50c.
Parlor bouquet (professional): John Burr, \$2.
Parlor bouquet (amateur): Mrs. Charles Stanley, \$1; S. B. Scribner, 50c.
Wall bouquet (professional): John Burr, \$1.
Wall bouquet (amateur): Mrs. D. H. Knowlton, \$1; Mrs. Charles Stanley, 50c.
Hand bouquet (professional): John Burr, \$1.
Hand bouquet (amateur): Mrs. Francis Hoyt, \$1; Mrs. D. H. Knowlton, 50c.
Floral design (professional): John Burr, \$8.
Floral design (amateur): Mrs. Charles Stanley, \$5; Ellen B. Roak, \$3.
Floral wreath: Lucy A. Burr, \$2; Mrs. A. B. Strattard, \$1.
Floral dinner decoration: Mrs. D. H. Knowlton, \$2.
Dish of cut flowers: Cora H. Stanley, \$2; Ellen B. Roak, \$1.
Artistic exhibition dried grasses: Mrs. Charles Stanley, \$2.
Basket cut flowers: Miss Edith F. Pope, \$2; Mrs. D. H. Knowlton, \$1.
Artistic exhibition everlasting flowers: Mrs. D. H. Knowlton, \$1; Mrs. Charles Stanley, 50c.

GREENHOUSE AND POT PLANTS.

- Exhibition greenhouse plants: John Burr, \$15.
Pot plants: Lucy A. Chandler, \$10; Miss L. M. Pope, \$8.
Ferns: John Burr, \$3.
Geraniums: John Burr, \$2.
Begonias: John Burr, \$2.
Coleus: John Burr, \$2.
Specimen Double Geranium: John Burr, 50c.
Single Geranium: John Burr, 50c.
Single Foliage Begonia: John Burr, 50c.
Single Flowering Begonia: John Burr, 50c.

Single Coleus: John Burr, 50c.

Single Fuchsia: John Burr, 25c.

Single Carnation: John Burr, 50c.

Single pot plant: Mrs. J. B. Walker, \$1; John Burr, 50c.

SPECIAL PREMIUMS.

Floral design arranged by boy or girl under fifteen: Lucy A. Burr, \$3; Farrington Abbott, \$2.

Cut wild flowers: Clarence H. Knowlton, \$3; Mrs. E. C. Waterman, \$2; Mrs. Charles Cushman, \$1.

Pressed wild flowers: Miss Laura B. Beals, \$4; Theresa H. Soule, \$3; Mrs. E. C. Waterman, \$2.

Summary of Premiums Awarded.

On apples.....	\$307 50
On pears.....	68 00
On plums.....	37 00
On grapes.....	1 50
On canned fruits	53 75
On flowers	165 75
Total.....	<hr/> \$633 50

Business Transactions.

MEETINGS OF EXECUTIVE COMMITTEE.

March 7, 1890. Meeting of Executive Committee held in Lewiston.

By invitation of President Prince the committee met the trustees of the Maine State Agricultural Society, and it was mutually agreed between the officers of the respective societies to hold the next annual fair with the State Agricultural Society. The terms and conditions being the same as last year. The time of the exhibition was fixed for September 9th, 10th, 11th and 12th.

April 25th, 1890. Called for the revision of Premium List. The following assignments were made for the fair :

General and county exhibitions of apples, L. H. Blossom.

Display of single varieties of apples, H. W. Brown.

Pears, plums and miscellaneous articles, J. W. True.

Flowers and potted plants, Charles S. Pope.

September 13, 1890. During the fair orders were drawn for sundry purposes. The treasurer was instructed and authorized to invest \$400 of the Permanent Fund in the First National Bank of Farmington.

December 1, 1890. Met in Lewiston for the purpose of auditing the exhibition accounts and other matters of importance to the society.

Treasurer was directed to pay the premiums and for this purpose and to meet other bills he was authorized to make a temporary loan not to exceed the sum of four hundred dollars.

The following vote was passed and copy of same was forwarded to President Fernald :

That in behalf of the Maine State Pomological Society, its Executive Committee in session this first day of December, 1890, in the city of Lewiston, respectfully request, in the interests of horticulture

and pomology in our State, that there be established in connection with the State College of Agriculture and the Mechanic Arts a department of horticulture; that in our opinion an efficient department of this nature will necessitate the appointment of a competent professor, and the employment of a practical and skilled horticulturist and gardener; that the magnitude of the interests thus represented demands the expenditure in this department of sufficient funds to secure efficient instruction and direction of the department, and practical ability to intelligently operate the greenhouse, improve and beautify the college grounds, and, under the direction of the Director of Experiment Station and the Professor of Horticulture conduct such experiments as they may determine from time to time.

The following letter was shortly after received from President Fernald:

ORONO, MAINE, December 13, 1890.

D. H. KNOWLTON, ESQ.,

Secretary Maine State Pomological Society.

DEAR SIR:—Your favor of the 9th inst. containing vote of the Executive Committee Maine State Pomological Society relative to Horticultural Department of the College has been received.

I hardly need say that the subject of which it treats and its suggestions will receive very careful consideration.

Progress is making in the matter of filling the chair of Horticulture although final action has not been taken.

When once it is filled, it will be very natural to confer with the incumbent and to be guided to an extent, by his ideas as to the nature and amount of assistance needed.

Now that we have a good plant-house and conditions favorable for the establishment of a department of Horticulture, the effort will be made to make it serve, as completely as possible, the interests of the College, the Station and the State.

Thanking you for your letter and its suggestions which will be presented to the full committee having the subject in charge,

I am, yours very truly,

M. C. FERNALD.

With reference to the World's Columbian Fair it was

Voted, That whereas under the authority of Congress a World's Fair is to be held in the city of Chicago in 1893; that whereas, the State of Maine has a general interest in making the exhibition a credit to our great and prosperous nation; that whereas, it will prove an advantage to our varied industries to have them well represented at the fair:

Therefore, we most respectfully request His Excellency the Governor of the State, in his annual message to urge upon the Legislature the passage of such acts and the appropriation of such funds as will secure for the State an exhibition of her products and industries; that among these industries we consider fruit culture especially important and destined under favorable conditions to great development in the future, and we most respectfully urge that this great industry be given the prominence its extent and importance demand.

And furthermore that we commend the subject of the World's Fair to the favorable consideration of the Legislature about to assemble, and urge upon its members respectfully the importance of passing such laws and appropriating such funds as in their wisdom may be deemed necessary to secure the desired object.

February 26, 1891. At the close of the winter meeting, the executive committee arranged to have the interests of the society represented at the farmers' institutes to be held during the spring.

In the matter of the unpublished transactions for the years 1879-80-81, it was voted to instruct the secretary to publish only so much of the transactions referred to as shall show the organization of the society and its financial condition during these years.

PUBLIC MEETINGS.

September 10, 1890. Annual meeting, held in Park Hall, Lewiston, at 6.30 P. M. Officers for 1891 were elected. See p 6.

September 11. Fruit Growers' Convention. Addressed by Hon. Henry E. Van Deman, Pomologist of the Agricultural Department at Washington. An abstract of his address appears among the papers in another part of the transactions.

February 24th and 25th. During the winter meeting in Bangor the following business was transacted:

Report of treasurer presented and accepted. See pp. 9 and 10.

The secretary read a communication from Mr. Frederick H. Moses of Bucksport inviting the members of our society to visit his greenhouses. It was announced that trains would run so as to accommodate all who wished to visit Bucksport on the day following the meeting.

Professor W. H. Jordan, Director of the Experiment Station also extended an invitation to all to visit the station and College at Orono.

The President appointed J. W. True, Phineas Whittier and C. A. Arnold, a committee to examine the fruit on exhibition. Later the committee having made their examination reported as follows:

REPORT ON FRUIT EXHIBITED AT WINTER MEETING.

FOR BEST COLLECTION OF APPLES—S. C. Harlow, Bangor, 1st; Phineas Whittier, Farmington Falls, 2d; O. L. Larrabee, West Levant, 3d.

BALDWINS—J. W. True, New Gloucester, 1st; S. H. Dawes, Harrison, 2d; G. K. Staples, Temple, 3d.

TOMPKINS KING—D. J. Briggs, South Turner, 1st; S. H. Dawes, 2d; Mrs. A. B. Strattard, Monroe, 3d.

NORTHERN SPY—G. K. Staples, 1st; S. H. Dawes, 2d; D. J. Briggs, 3d.

RHODE ISLAND GREENING—J. W. True, 1st; D. J. Briggs, 2d; C. A. Arnold, Arnold, 3d.

ROXBURY RUSSETS—Davis Weeks, East Wilton, 1st; Abbie Macomber, East Wilton, 2d; D. J. Briggs, 3d.

BEN DAVIS—C. A. Arnold, 1st; J. W. True, 2d.

HUBBARDSTON NONSUCH—D. J. Briggs, 1st; Abbie Macomber, 2d; G. K. Staples, 3d.

JEWETT'S FINE RED—J. W. True, 1st; S. H. Dawes, 2d.

TALMAN'S SWEET—D. P. True, Leeds Center, 1st; G. K. Staples, 2d; C. A. Arnold, 3d.

POUND SWEET—J. W. True, 1st.

NAKED LIMB GREENING—Mrs. A. B. Strattard, 1st; C. A. Arnold, 2d.

B. RED—C. A. Arnold, 1st.

BLACK OXFORD—G. K. Staples, 1st; C. A. Arnold, 2d.

FALLAWATER—B. C. Wing, 1st; O. L. Larrabee, 2d.

YELLOW BELLFLOWER—O. L. Larrabee, 1st; Mrs. E. H. Gregory, Hampden, 2d.

AMERICAN GOLDEN RUSSET—B. C. Wing, 1st; Mrs. A. B. Strattard, 2d.

Also, many other kinds of apples were exhibited, of which only *one* plate of a kind were on exhibition, such as Wagener, Mann, Gravenstein, Bailey Sweet, Gideon, Fameuse, Ribston Pippin, Harvey, Wealthy, Red Canada, Lady, Spitzenberg, Red Rambo, and several seedlings, some of which were fine looking apples.

I. T. Waterman, East Auburn, exhibited three plates of very fine Baldwins.

Several specimens of pears in fine condition were exhibited by D. P. True, including Vicar of Winkfield and Kieffer. Lawrence and native pears were also exhibited by D. J. Briggs.

The committee chosen for the purpose consisting of Z. A. Gilbert, W. A. Luce and C. E. Wheeler, presented the following resolutions which were accepted :

Resolved, That the thanks of the Maine State Pomological Society and the State Board of Agriculture are hereby tendered to the Bangor Horticultural Society and to their associate organizations, the Penobscot County Pomona Grange and the County Farmers' Club for the cordial reception tendered to this meeting, and the many courtesies received at their hands.

Resolved, That our thanks are specially due the choir who have so faithfully attended on our meetings and by their music have contributed so much to the pleasure of the occasion.

Resolved, further, That our thanks are extended to the Windsor House for reduced rates, and to the Maine Central and other railroads for the courtesy of half-fare over their lines to attend this meeting.

Resolved, That our thanks are hereby tendered to the newspapers for the notices they have published of our meetings, and for the excellent reports they have given of our transactions.

Resolved, That our thanks are hereby tendered to the speakers for the excellent papers they have contributed, and for the interest they have shown in the exercises of our meetings.

February 26. Regarding the Bucksport trip the following report of the pleasures enjoyed by those visiting Mr. Moses' greenhouses appeared in the *Maine Farmer* :

Thursday, following the meeting of the Pomological Society in Bangor, the members, by invitation of Frederick H. Moses, visited his extensive greenhouses in Bucksport. The party consisted of about twenty-five, including officers and members of the society and ladies. The train reached Bucksport about nine o'clock, where they were met by Mr. Moses and conducted to his office, where introductions were made to himself and prominent citizens of Bucksport, who had been invited in to greet the company. The greenhouses, with all their floral wonders, were looked over with great pleasure and satisfaction. Mr. Moses has developed a large and successful floral trade, and everything about his greenhouses evinced his skill and thorough knowledge of the business. After hastily viewing the greenhouses, the party repaired to Mr. Moses' beautiful residence, where they were received by Mrs. Moses, assisted by Mrs. Charles G. Atkins and Mrs. Moses' sisters. In due time the visitors repaired

to the dining room, where a dainty feast was served. The table was adorned by an exquisite floral piece consisting of passiflora, begonia leaves and ferns. The train for Bangor was delayed an hour, and the company enjoyed the delay in a most agreeable manner. Before separating President Pope called the meeting to order, and Professor Cook of Manchester, in behalf of the company, expressed his pleasure and thanks for the courtesies they had received at the hands of Mr. and Mrs. Moses, and the managers of the M. C. R. R. The unanimous vote of the company approved of the Professor's motion. On returning the beautiful public library was visited with great pleasure. The return trip to Bangor was made very pleasant, and the company separated at the station with many expressions of gratitude to Mr. Moses for the pleasure his courtesies had afforded the company.

PAPERS, DISCUSSIONS, REPORTS, ETC.,

PRESENTED AT THE

UNION WINTER MEETING

OF THE

Maine State Pomological Society and the State Board of Agriculture,

HELD IN

CITY HALL, BANGOR,

February 24th and 25th, 1891.

Where no counsel is, the people fall : but in the multitude of counsellors
there is safety.

—*Bible.*

The Union Winter Meeting.

INTRODUCTORY.

So far as possible it has been the effort of the Pomological Society to extend the benefits of its work to all parts of the State. The first exhibition of the Society was held in connection with the State Agricultural Society in the city of Bangor, in the autumn of 1873. Since the organization of the Society none of its winter meetings have been held in the easterly part of the State. On conferring with members of the Bangor Horticultural Society regarding the desirability of extending the work into the eastern part of the State, that Society voted to extend an invitation to hold the annual winter meeting in City Hall, Bangor. It was a pleasure to the executive committee to accept the invitation in behalf of the Pomological Society. Later the Pomona Grange of Penobscot county and the Penobscot Farmers' Club joined in the invitation.

The union meetings held in recent years have proved so satisfactory to all concerned, that Secretary Gilbert of the Board of Agriculture accepted the invitation of the executive committee to join in holding another union winter meeting. Accordingly it was arranged to hold the winter meeting in City Hall, Bangor, Tuesday, and Wednesday, February 24 and 25, 1891.

The following programme was announced in due time :

TUESDAY, A. M.

Opening Exercises. Reports of Officers.

Address of Welcome.

Response,

Z. A. Gilbert.

President's Address,

Chas. S. Pope, Manchester.

Report on Experiment Station,

Prof. W. H. Jordan, Director.

AFTERNOON.

Cultivation of Small Fruits,

S. H. Dawes, Harrison.

Varieties of Strawberries and Marketing,

Willis A. Luce, South Union.

Results of Spraying (Illustrated by Specimens of Fruit.)

S. C. Harlow, Bangor.

Plum Culture,

Elijah Low, Bangor.

EVENING.

Care and Embellishment of Cemeteries,

John G. Barker, Supt. Forest Hill Cemetery, Jamaica Plains, Mass.
Agriculture—Its Present Condition and Future Prospects,

Prof. Elijah Cook, Manchester.

WEDNESDAY, A. M.

Better Care of Orchards,

J. W. True, New Gloucester.

Orchard Fertilizers.

Prof. Walter Ballentine, State College.

Fruit Growing in Aroostook,

Hon. James Nutting, Perham.

AFTERNOON.

Fruit Culture—Its Possibilities in Maine,

D. H. Knowlton, Farmington.

Inexpensive Means of Fertility.

Poultry.

Dr. Geo. M. Twitchell, Lecturer State Grange.

Swine,

Prof. I. O. Winslow, St. Albans.

Sheep,

By Discussion.

EVENING.

Poem—A Suggestion.

Miss E. L. Pope, Manchester.

Plants for House Culture and Mode of Treatment,

W. H. Allen, Gardener and Horticulturist, Insane Asylum, Augusta.

Our Homes and How to Improve Them,

John G. Barker, Jamaica Plains.

The programme was supplemented by several important papers, letters and discussions. As a rule the various subjects were ably treated, and almost without exception by speakers engaged in horticultural affairs. The papers, discussions, &c., following clearly indicate that Maine fruit growers are working in the right direction. The papers deserve careful reading by all interested in the culture of fruits.

The display of fruit was of excellent quality, and represented the best fruit growing sections of the State. The exhibition made by S. C. Harlow of Bangor, one of our oldest members, was the best single collection shown for years at a winter meeting. Other collections in quality were equally as good but none contained so large a number of varieties. The autumn and early winter specimens were in a fine state of preservation.

It is highly proper in this connection for the officers of the society to express their gratitude to the members of the Bangor Horticultural Society for the cordial reception given to the fruit growers of the

State. Especially would we recognize the zeal of Mr. B. A. Burr, and the valuable services he rendered us, though at the time suffering from a fatal malady, which a few weeks later caused his death. We take this opportunity of extending our sympathy to the bereaved family in their affliction.

The hall was appropriately decorated for our use and the officers of the Bangor Horticultural Society were very attentive in their efforts to make the gathering one of profit and interest to all. The press of the State have freely published our notices of both meetings and exhibition. The Bangor papers especially deserve our thanks for the careful and extended reports of the meeting which they published in their columns.

In the following papers, discussions, &c, the reader should bear in mind that the ideas are not necessarily endorsed by the society. They are, however, from some of our most successful fruit growers and authorities on matters pertaining to fruit culture.

OPENING EXERCISES.

At the appointed hour Tuesday, February 24, 1891, in City Hall, Bangor, Maine, A. L. Simpson, President of the Bangor Horticultural Society called the meeting to order, and in behalf of the Bangor Horticultural Society and other local organizations gave the following

ADDRESS OF WELCOME.

Ladies and Gentlemen: "The Bangor Horticultural Society," which welcomes you here to-day, was organized March 30, 1860. Then but little attention had been given to the cultivation of small fruits and flowers; few pears were raised in this State, and apples in general, were poor.

About that time, Albert Noyes, who was an active member of said Society, commenced to cultivate strawberries. He found it difficult to dispose of the few he raised, at any price; while now, immense quantities of them are produced in and about Bangor each year, and find a ready market at good prices. The increase in all kinds of small fruits, as well as flowers, has been equally great in all parts of the State. The growth of pears has become large and profitable; while the advancement in the production and quality of apples has been very great and remunerative to the grower. Large shipments of apples are made to Europe each year, where a ready

market is found for them ; while their sale at home has been largely increased, and their use has become so common that they are now considered one of the necessary articles of food. More interest has been manifested in the cultivation of flowers, so that now they are used for adornment on all occasions. To-day they add much to the beauty and appearance of this hall.

"The Maine State Pomological Society" acquired its charter February 17, 1873, under the auspices of the "State Board of Agriculture," which had then been organized many years, and was doing much to encourage the cultivation of fruits and flowers. To these various organizations, the County Farmers' Clubs and the County Pomona Granges, the State owes this great progress. To the harmonious actions, meetings and discussions of these organizations is due also great improvement of the finer and intellectual characteristics of the people. In furtherance of this progress, in the cultivation of fruits and flowers, and of the intellectual advancement of our people, "The Bangor Horticultural Society" most cordially welcome you to our beautiful city, trusting that your meeting here may be both interesting and beneficial.

RESPONSE BY HON. Z. A. GILBERT.

The members of this Society years ago caught on to something of the possibilities of the business of fruit growing in our State from their own experience and from opportunities of observation which had been open to them. But the extent to which it had then been carried on was limited. The orchards were small as compared with the present day and nowhere among us very numerous. The idea was entertained that the business ought to be developed. Out of that idea the Society came into existence. It was incorporated by the legislature with an annual appropriation of \$500 for its use, subject to the condition that a sum not less than the amount named should first be awarded and paid out in premiums.

The method adopted for carrying on the work of encouragement to the industry by the faithful men who had banded themselves together was through exhibitions where results could be impressively illustrated through a representation of the profits of the business, and through such measure of instruction as could be conveyed by word of mouth at the public meetings of the society. In these lines up to the present time the work of the society has been carried on

and we believe we can rightly claim that a measure of results has come from the efforts. It has been purely a labor of love, or rather perhaps of duty, on the part of the workers, they feeling fully compensated if the people could be drawn together to imbibe a measure of the inspiration which prompted their efforts.

These efforts thus put forth we pride ourselves have brought forth fruitful results. Under their influence orchards have enlarged their borders and many enclosures otherwise of limited value and of little income are now annually loaded with delicious fruit bringing to the farm its needed revenue.

But, ladies and gentlemen, the society realizes full well that the work thus accomplished is not all that is called for. We are coming on to, if not already entered upon, an age of specialities. This calls for skilled workmen. Skill comes from training, which is only an unused term for schooling. Here is a field of work broad and deep that the society has been able to enter upon only in its most crude and bungling manner. Our day is calling for schooling in fruit growing as it is in those other industries which go to fill the measure of want demanded by a cultured people. It is not enough in this age that our boys and girls be educated for the purpose merely of *knowing something*. The demand is that they may therefore be aided in *doing something*. The boy to-day who can only dig out a Greek root or demonstrate a problem in the Calculus is no match for him who can cover a field with luscious strawberries or hang a tree with red-cheeked Baldwins. This is schooling that reaches results which the great world of to-day cannot do without. Our accepted definition of education needs modifying to correspond with the day in which we are now living.

This society possibly may not be so well equipped for this latter class of work, but it can and should point out to other instrumentalities that which is called for, and thus still make the organization instrumental for good in this broader relation. This I am glad to say the society is endeavoring to do. It is making itself cognizant of what is going on in the great field of education among us, and is disposed to use its influence to see to it that our horticultural interests be accorded that measure of attention rightfully their due. In this connection it is pleased to recognize the introduction of horticultural education at our State College, and purposes to aid in every legitimate way all movements connected therewith promising to

make that work effective. It asks of you, members of the Bangor Horticultural Society—it asks of you, members of the Penobscot County Farmers' Club—it asks of you, men and women, members of Penobscot Pomona Grange, that you join with us in helping on this later phase of educational work, not only in the line in whose interest we are here assembled, but also in its broader application to the various industries of life. That you accept the truism that "he is most entitled to public praise who best cultivates his soil," is proof that you have accepted this modern idea of education.

We are glad to join hands with you in the work, glad to meet with a people who fully appreciate our aims and purposes. Your presence alone is enough to give encouragement, but if you see fit to add a membership to our society you will be doing a double good. The fee for life membership is but \$10, and that for annual membership \$1. Some money is necessary to the work and any membership will be gladly received.

Thanking you for your invitation to meet with you, and for the interest you have manifested in the meeting, we hope that our horticultural interests will receive substantial encouragement from our association, and that you will be repaid for the interest manifested.

MR. BURR'S PAPER.

The local arrangements for the meeting in Bangor were largely perfected by Mr. B. A. Burr, member of the Board of Agriculture from Penobscot county. It was the occasion of general regret to those in attendance, that Mr. Burr in consequence of sickness was unable to be present. For several weeks he had been confined to the house. At the time of the meeting his courage was good and he was anticipating the pleasure of being present at the opening exercises. His physician, however, feared the exposure and the excitement, and would not permit his patient to leave the house. The disease proved fatal, and our hearts were made sad a few weeks later to learn of his death. He was an active friend of the farmer and his influence among the fruit growers in eastern Maine was very great. He will be greatly missed at the agricultural gatherings in the State, but the lessons he taught during his life will endure. Cordial, earnest and true-hearted the influence of his words and character will live long in the memory of those who knew him. It was a pleasure, however, to have a paper from him read

by the chairman. It was one of his last and written during his sickness. The paper follows :

In answer to the letters of the Secretary of the State Pomological Society, proposing to hold their winter meetings in this city, stating that it was their desire to hold it where it would be best appreciated and likely to do the most good, I did not hesitate to inform him that he need look no farther, but fix dates and arrange a good programme, and if the society did not find an attentive, intelligent and appreciative audience here, there would be but one to blame, and that one the member of the board from Penobscot.

No doubt the query suggested itself to the mind of the Secretary : "If, as the writer intimates, the farmers of Penobscot county are an intelligent and wide-awake class, how could they have made such a mistake in selecting their member of the board."

Of all the occupations men engage in for the purpose of gaining a livelihood, by the application of capital, there is not one in which a varied and accurate stock of knowledge is not only desirable, but so absolutely necessary for obtaining the greatest returns, as in farming. The farmer's operations are not few and unvarying like the manufacturer, who is not affected by heat or cold, wet or dry, snow or frost. The farmer, necessarily, lives apart, which prevents him from seeing much beyond what he does himself, so it is only through reading and attending these meetings that he can receive the benefits of the successful and valuable experiments which are constantly being made.

The subjects to be discussed at these meetings are of the deepest interest to the whole community. A comparison of methods and results, failures and successes, the interchange of ideas help those engaged in the various branches of agriculture to receive the full benefit of their untiring attempts to succeed.

Farm life, from the effects of these gatherings, is constantly growing more social and attractive to old and young. The farmer now takes with him his wife, sons and daughters, that they may share the benefits of social interchanges of thought and action of the outside world. No thoughtful man, no intelligent woman, no bright boy or girl who has become familiar with the benefits and pleasures derived from these meetings, will neglect them without the best of reasons ; they are of common interest and universal benefit ; they not only help the farmer to raise the best and most perfect fruits, flowers, vegetables, grains and grasses, but to fill his position as a citizen honorably.

All intelligent citizens look to the soil as the great source of national and individual wealth; and consider every advance which is made in its improvement adds to the means of their happiness. Land and labor are the great sources of public and private wealth. The more fertility we impart to the one, and the more intelligence we infuse into the other, the greater will be the returns and the greater our means and power. Wealth rightly employed procures for us all the substantial enjoyments of life—it renders us as individuals or as a nation, independent. The character and power of a state depend upon the knowledge, industry, enterprise and independence of the rank and file of society, not upon the very few rich men, nor the few wise men.

The appellation of "*great and good*" can surely be applied to those who concentrate their efforts to improve any particular branch of agriculture, as they are thereby promoting the welfare of the whole community and the happiness of the whole human family.

The efforts of such persons as we have with us to-day to improve the various branches of agriculture, by imparting scientific, as well as the best practical instruction, are better appreciated and are receiving more credit and encouragement from men of property, culture and influence than ever before. Many of us can well remember the time when the worst stumbling blocks in the way of improvement and progress were a few farmers themselves; they were distrustful of all institutions and associations that were being inaugurated for the special benefit of agriculture; they were noted for their skill in the art of "holding back"—no ox was ever more skilled in this direction. But now, when such a one strays into our meetings we have to look a long time before finding a mate for him, for no two were ever known to "back" or "pull," together.

Prof. B. F. Koons when asked to read a paper on "Insects Injurious to the Apple," before a pomological society, said his first thought was: "No, I dare not confront such an assemblage of men who are well informed upon this important subject;" and then after giving a sober second thought to the matter, it occurred to him that what he said there and the deliberations of that body would not stop there, but its proceedings would find their way into the public prints—that the reports would appear in the annual report of the Board of Agriculture, and thus be perused by a hundred others for every hearer present at that time. He also related several of his experiences he had had as he mingled among men. On one occasion, in

conversation with one of the most intelligent men in a certain community, he said he never knew before that the caterpillar feeding upon his plants in the garden would ever develop into a butterfly; he supposed it was once and always a disgusting worm. At another time a horticulturist of some experience, a man of great intelligence, too, came with a few army worms in a bottle, and with great solicitude said: "Why, they tell me that they will march across the country at the rate of five or six miles a day, sweeping everything before them!" When told that his field of cabbage was safe, because they rarely attacked plants with netted-veined leaves, he drew a long breath, as much as to say, "Saved!" Another community was afflicted by the same worm, and sent for the Cattle Commissioner.

While we believe our citizens are as intelligent as the average New Englanders, many of us may be found to be as ignorant of some of the specialties allotted to the speakers at these meetings as those referred to, but I can assure you that the most intelligent know there are yet many important lessons to learn, and they will be your most attentive listeners, for they know you to be thoroughly in earnest in this work, believing that the diffusion of useful knowledge is a help to men and women in a struggle for livelihood.

In this community he is most entitled to public praise who best cultivates his spot of ground, and whose motto is, "The improvement of the mind as well as the soil."

Mr. Charles S. Pope, President of the Pomological Society, was introduced and presented his

ANNUAL ADDRESS.

Ladies and Gentlemen, Members of the Pomological Society:

When we call to mind the lively interest you have always taken in horticultural matters, and remember that this is the home of many noted fruit growers, some of whom have been originators of valuable varieties of pears and plums, we feel confident no better place could have been selected for our winter meeting. The close proximity of the agricultural college, with its corps of professors, with the knowledge of, and interest in our department, makes another argument in favor of the present locality.

The officers of our society, on learning of the additional appropriations for the benefit of the State College, took an active interest

and used what influence they could, that a due proportion should be expended to establish and successfully carry on a department of horticulture. From what we can learn the officers of this institution are in full sympathy with us, and are taking pains to secure efficient professors for this department. Closely connected with this is the State Experiment Station, and we would here mention the timely aid afforded by its officers in working out some of the problems which are puzzling the fruit growers. We believe their efforts will soon be acknowledged to be of vast benefit. If a remedy should be discovered, which will hold in check that terrible scourge, the apple scab, it will pay for the expenditure of thousands of dollars, for we believe this one disease is worse than all others combined. From the little study we have made of this disease, we are inclined to charge most of the failure of the apple crop in our own orchard the past year, to this cause. The time is coming when those who keep posted as to the best methods of destroying the myriad enemies of the orchardist, and thus be able to successfully fight them, will reap the benefit. For such men destructive insects and diseases will actually prove advantageous, although his fruit is obtained at such cost and labor, because those who successfully fight the borer, codling moth, maggot and apple scab, will ever be in the minority, and the choicer fruit raised by such orchardists will always command remunerative prices. There is one class of men I wish we could reach and influence. I refer to those, who having had good success in fruit culture are either too conceited or too selfish to share their knowledge and experience with others. It requires a great deal of faith in possibilities, and at best is up-hill work and sometimes rather tedious, to go from place to place, year after year, trying to awaken an interest in fruit culture and the beautifying of farmers' homes, and to urge that, even if this brings no returns in dollars and cents, it will bring delight and comfort, and what those who are obliged to purchase count luxuries. For what end is money making, but to purchase bodily comforts and pleasure? The wealthy citizen pays immense sums every season for fruits and flowers that any farmer may raise on his own grounds, with small outlay of time and money, and also have the advantage of having them fresh for the gathering.

The beginner in fruit raising may, for lack of experience, make a failure the first few years, but when he is able to place upon his table a few quarts of choice berries, with only the outlay of a few

hours' work, he will then count them a necessity as well as luxury. The outlay for a beginner is so small that it is hardly worth naming, as it is much better to get some of the standard varieties of small fruit in his own neighborhood, than to send abroad for new and untried varieties. Most fruit growers have a surplus of young plants, and being as a class free-hearted and generous, are ready to assist the beginner, and charge only the cost of digging.

I know men thoroughly interested in any subject are liable to give it undue importance. Any object too near the eye obstructs the vision, shutting out and dwarfing all else. Nothing is more natural than for an orchardist to feel and say that fruit growing is the surest way to fortune, and to urge everyone to engage in it. But I think if you take notice you will find that those who make a success in the business are men who not only have faith in it but a love for it, which leads them to devote their time and attention to the orchard, to the exclusion of everything else. This love is by no means universal, as many a man has found to his cost, when, in a fit of enthusiasm caused by his neighbor's success, he sets a young orchard, and then, for want of this love, lets it die out. I have vivid memories of sitting on the limb of a sweet apple tree, devouring the half-grown fruit, and in imagination building castles in the midst of immense orchards. Though the castles are not built, I have so far carried out my dream of the orchard that should surround it, that I have every spring set more trees, and a big orchard is more likely to become a fact than any other of my childish dreams.

It is so easy for a child to become interested in watching the growth of a seed he has planted, and from this beginning he may be led by easy steps, through growth, to the flower and fruit of his tiny plant, the requisites for its growth, and even the study of the brown, unattractive soil that nourishes it. I believe the people of Sweden are correct in the theory that if you wish to teach horticulture to the people, it is better to begin with the children. The government employs twenty-five men to visit the schools, superintend the planting of nurseries and school gardens, and assist the teachers in giving instruction in these branches. I believe a system like this would awaken an interest in horticulture in Maine as well as in Sweden. Practical object lessons by experienced fruit growers would accomplish more than would be possible by any other method. The raising of nursery stock, planting of trees and vines, pruning, grafting and budding are easily taught, together with the care of

small fruits and vegetables. The knowledge thus gained will surely lead to the raising of the fruits at home, and thus to a business at once satisfactory and remunerative.

I cannot close without once more calling your attention to the resources of our own goodly State. Why will our capitalists insist on investing their surplus in Western lands, or the orange groves and peach orchards of the South, when our hillsides, adapted by nature to orcharding, wait for occupation? It is not only a safe, but sure foundation these investments in Maine rest upon, for they will yield sure returns. We agree with some of her recreant sons that Maine is a good State to be born in, but we also firmly believe that she is still a better one to live in, and that in no State we can receive surer returns than she gives to the industrious and intelligent orchardist.

BETTER CARE OF ORCHARDS.

By J. W. TRUE, New Gloucester.

A recent agricultural writer has taken a great deal of pains to study up the world's supply of foods, cotton, petroleum, &c., and tell us that within five years "good land anywhere in the United States will be worth \$100 per acre," and that all food products will be in quick demand at good prices; but it seems to us that such statements should be guarded against, that they may not lead us astray, for cannot we all think of countless acres that can be made to double their yield with intelligent and thorough cultivation. The more the great farms of the West, within a certain limit, are cut up the more cattle they will produce, the more food products they will furnish; therefore it stands us in hand to be on our guard, to be on duty and see to it that we get the most from our acres, doubling the product by a little timely care, and in no other branch of our farm operations is this more true than of our orchards and fruit trees.

In the first place, how many in planting an orchard properly prepare the ground before the trees are set? Probably not one in ten. At least a vast majority of our fruit trees are put into the ground and the planter virtually bids them "good by," and the tree is expected to do all the rest of the work from that time onward, making its annual growth, and in the regulation time loading itself with large quantities of No. 1 fancy fruit. How many of such trees set in that

way ever have or ever will pay for themselves and the cost of planting, no matter how quick the demand or how high the price? Our preference would be to have the land well plowed, where it is practicable, a year previous to the time of setting the trees, the soil appears to get in a finer condition and the roots take hold more readily and we get quite a growth the first year, by giving the land a liberal supply of dressing. Other crops may be raised on the land to good advantage even to the extent of paying all the bills. With us potatoes is a good crop for the first year after the trees are set, then perhaps corn not planted too thick or very near the trees, it is preferable to rotate the crops not planting the same crop two years in succession, to be continued from eight to ten years, when if proper care has been taken, you will have an orchard that will begin to *show*, and if the whole matter has been properly handled will only have cost the first outlay for trees and the setting.

The distance that trees should be set apart is a matter of considerable importance, thirty feet appearing to be the better distance, all things considered. We have in mind an orchard that has been set some eighteen years, the trees being forty feet apart and they are not neighbors yet, and the prospect is that they never will be. That appears to be the extreme in that direction. There is also another orchard in the same town where the trees are $16\frac{1}{2}$ feet apart, have been set seven years and they already have the appearance of being crowded, it being impossible to work a team among them, thereby making it very expensive to give it the care it should have to make it a thrifty orchard and paying investment.

Perhaps the subject of pruning next to that of fertilization is the most neglected and should receive vastly more care than is now given to it. In the first place the head of the tree should be properly formed, and where nursery stock is bought, that part has already been attended to and in such a manner that the tree is a perfect little image and looks in the most perfect proportion. When the tree is properly set the trunk or body of the tree is about two and a half feet up to the limbs, then the branches come out just right for a small tree, perhaps four or five branches coming out from the main stock in as many inches of space and at the end of six or seven years it begins to dawn upon the planter that the limbs of his trees are too low, appearing to be very near the ground, making it impossible to get near them with a team and very nearly so for the man himself; and the branches have the appearance of

all starting from the same point on the main stock, and in a majority of cases there appears to be a very poor union of the limb to the stock, allowing water to enter and reach the wood of the tree, and decay rapidly sets in; and in many cases before the tree has reached the profitable stage of its life it will go to pieces, perhaps one limb at a time, and quite often will follow each other in rapid succession. When the head is formed the orchardist should have the outline of his future tree distinctly in his mind. When a limb is allowed to grow think how it will look when it is six inches in diameter, and give it room accordingly on the stock and if it starts properly it will almost invariably make a perfect union with the trunk, and in that case the life of the tree is greatly prolonged. The length of the trunk, or in other words, a high head or a low one, is a subject for careful study; for ease of cultivation the high head is preferable, but for the less hardy varieties it will not do to get the body of the tree too long as it is more liable to disease and winter killing. If fairly hardy the head should be set from four to five feet; this allows, with a large number of varieties, of its being cultivated with comparative ease; it is also much more convenient dressing and mulching it after it has come into bearing.

The pruning should be carefully attended to, ever having in mind that it costs just as much to grow a branch that is not required as it does the most needed and useful ones. If possible do all the cutting with the small blade of a pocket knife for the first ten years. If every tree is made a subject of study, find out its habits and peculiarities, and have the future tree clearly outlined in the mind, allowing no limb to grow that will not contribute to that end. By faithfully carrying out such a policy what an incalculable amount of wasted and worse than wasted energy would be saved, for where large limbs that are not required are taken off it affects the vitality of the tree; decay will often set in and eventually ruin it. After it comes into bearing it should be liberally dressed in order that it may bring a full crop of fruit to perfection and make a thrifty growth of new wood each year.

Half the trees that the majority of our farmers possess to-day, if properly dressed and pruned would produce twice the amount of marketable fruit that they do now. The keeping of a tree that is unproductive is in a degree just as much a tax on the resources of the fruit grower as the keeping of an unproductive cow is upon the dairyman. We should not expect a cow to go on producing rich

milk in large quantities day after day and year after year, unless we gave her food and care to that end. No more can we expect our fruit trees to yield us large crops of fine fruit year after year unless we give it a good honest measure, all that it can handle of its food wherewith to manufacture this much desired product in full measure.

Our insect enemies are very numerous and are multiplying rapidly. They are at work from the base of the trunk to the topmost twig, and we must fight them in season and out of season. The borer is one of the first enemies to which we are obliged to turn our attention; it will attack our trees just as soon as they are set and unless they are looked after and removed they will destroy the tree. Our only remedy has been to look them over often with knife in hand and take out the little fellows as soon after they are hatched as possible; in that way we have reduced their ravages and the consequent damages from them to a very great extent. The caterpillar is another enemy that we must look after continually; it is our practice to remove every nest as soon as it is seen, making no difference what we are doing. In that way we greatly reduce the damage from them but do not see that their number is greatly reduced by so doing.

The greatest problem is still before us, which is to save our fruit after we have got our trees already to produce it, and we are anxiously waiting for remedies to be discovered whereby we can protect ourselves from the apple maggot and the apple scab. Spraying appears to have solved the question of protecting our fruit from the codling moth, which perhaps has never been an unmixed evil, oftentimes doing the work of thinning the fruit on overloaded trees, indiscriminately it is true, still a much needed task in some cases. In conclusion, we would say, that as a rule farmers are a hardworking class and perhaps always will be, but is it not possible that if we should devote more time to study, find out more in regard to the best methods of protecting ourselves against our insect enemies and then putting those methods into practice, we should find more leisure to enjoy the beauties of our situation, watching the operations of nature which we have in a measure assisted and directed?

DISCUSSION.

Ques. In trimming trees would you trim to correspond with the habits of growth?

Mr. TRUE. I should have in mind the character of the tree every time. I should train the tree so I could work around it, but not try to make an upright tree out of a spreading grower. You should have in mind, the tree as it will be in ten or fifteen years. If you see a limb three-fourths of an inch in diameter that comes close to another which would interfere, you should remove one of them.

Mr. PHINEAS WHITTIER. I have noticed frequently, when two limbs come out together, where two branches make the main top; that in those crotches between the limbs you would see a dead place; it would begin to die from that each way, as long as they remain in that shape. the place would grow larger and larger every year; the water would get in, and when it would freeze that would crowd it apart. The first intimation you have that there is a dead spot in the crotch of these trees, cut one of them off slanting. Where two branches make the main top, you cannot tell which would make the best top. If you cut out one you cut half the tree off and so with the other; but you must cut *one* out. I have generally cut out the northern one and let the southern one be to shade it, even if the northern one would make the best looking tree; because if you cut out the southern one, the hot sun is liable to injure the tree. It will heal over and you will be surprised to see how you can balance the top, by checking limbs from growing on the full side. Any sprouts that come out above where you cut the other branch out, let them grow, and in a few years you will have a balanced top; but if you leave them on, it is growing worse all the time, and as soon as it loads with fruit the wind will split it.

There has been one question in my mind and that is, the particular *time* to prune trees.

Mr. WALKER. You can form a tree as you wish by commencing at the right time. I don't cut out the branches, but I trim everything from the inside of the tree until I get it in good shape. I never allow grafts to extend upward, beyond what I think will make a good formed tree. I go around twice in the season and cut the tops of the high scions back. Remove those that go through the top and you have then an open top and can pick your apples easily.

The Northern Spy is the worst tree we have for getting a handsome top but I have as good formed trees of the Northern Spy by paying attention to it, as from the Baldwin and Greening. I trim my trees twice a year, as much as I comb my head every day.

I have come to the conclusion that October or November is the best time to trim trees. If you trim a tree in the fall, you want to go through in March and take off every sprout and they will soon begin to show no signs of sprouting; but in the spring you will have sprouts.

I have only a few leading kinds; these are Greenings and Northern Spys. If you have a great many kinds, you cannot use your apples so well as if you had only a few kinds.

There were two things I got beaten on; the first thing was the caterpillar. I saw in the papers about putting factory cloth around the tree and tar it. I went to work on a hundred trees, not knowing the result. I saw the leaves began to decay and out of that effort I lost forty trees. I learned something. The next thing is to take care of the caterpillars. Next month is a good time. I have a pole sixteen or eighteen feet long with a knife at the end. I have a colored glass, which is a magnifying glass, that enables me to see every place around the limbs where the eggs are and I can get them off rapidly. I take them before they are hatched out and don't have much trouble with the caterpillars. This book knowledge is worth a good deal, but I never saw a good farmer with book knowledge and no experience. The most take these things and experiment, and when we touch the right thing, hang to it. I am glad these college fellows are giving us some things, but we old men who have fought trees and mosquitoes know what it means.

Prof. MUNSON. Mr. Walker says our knowledge must come by experimenting. I agree with him that we can form the tops of trees in any desired shape; but perhaps I don't make myself clear. We should not try to give the Northern Spy the same form as the Greening. With your Spys you train from the center; with Greenings you train from the outside in. You have a different picture for the Spys in mind, than with the Greenings. The natural habits of the tree must be borne in mind in pruning.

With regard to the caterpillar I would recommend putting a band of cotton cloth around the tree. The codling moth is often confounded with the canker worm. The first flies and the other crawls up the tree.

Mr. BARKER. Now that I am here, I want to say a word on that line, in regard to this beautiful exhibition of apples; that I can carry back to the Massachusetts Horticultural Society such a report. It does pay to take care of trees, as you have the evidence here before you. I was talking with Prof. Saunders and these were the words he used: "You Massachusetts fellows like to use the knife pretty well and when you get done you have a nice shaped tree with foliage so thick that the air cannot circulate through and you get a quantity of small fruit. You want to go home and tell others to thin out more." Then I asked what his rule was, he said, "Your judgment; but you want to thin out a tree sufficiently to get the light and a good circulation of air." He went and showed me his orchard and showed me what he meant; and I went home and carried out those suggestions and I had fruit that, I am happy to say, the Massachusetts Horticultural Society gave a prize, and I am indebted to Mr. Saunders for it.

Mr. GILBERT. In this connection I want to speak of the caterpillar. There has been for two years a remarkable visitation of various tree caterpillars in the north part of this county. They have travelled over the forests and the orchards in this county. Many who own these orchards have called them the ordinary caterpillar; but there is a distinction between the two. If this visitation is to be repeated this year and they are to travel on to other fields among the orchards, it is necessary that we should have a little information that may be of importance to us. We travelled through an experience of two years in connection with the work and we have learned our lesson. If we had known at first, what we knew before we got through it would have been thousands of dollars to our benefit; we would have saved the lives of thousands and thousands of apple trees; and that is, how to prevent this forest tree caterpillar from traveling on to pastures new. When they eat the foliage off from one tree, they travel on to others and if you would check their work, you have simply to prevent their approach to the tree. We tried everything that the ingenuity of man could invent for the purpose of keeping the caterpillars from going upon the tree. We finally discovered one thing that was effective and that was to cover the trunk of the tree with a coat of sulphur and lard; and no caterpillar will travel over it. The sulphur protects the lard from the effects of the heat and it remains there. Tar will stick, if applied on card paper, and not coming in contact with the bark; and was

effective while fresh; but the sun shining upon it, would harden the surface and the caterpillar would travel over it and the next morning the trees would be loaded with them. Take a stiff paper and wrap it around the trunk of the tree and put the sulphur and lard on the paper and no caterpillar will travel over it.

Prof. HARVEY. Last fall, I took 135 cocoons from a locality east of Old Town and put them away. Out of the 135 cocoons there appeared twenty of the perfect insects. Further examination showed me that these cocoons were infested with four different kinds of parasites. I examined eighty of those cocoons and found they contained parasites. Nature takes care of this matter; not more than fifteen per cent of these caterpillars will mature. They are subject to great mishaps, beside the moths that come forth. You can tell the eggs of the forest caterpillar from the apple tree. You can tell by the cluster of eggs. The egg of the forest caterpillar is square at the ends and they lay around the twigs, while the ordinary caterpillar's eggs slope off at the ends. I might say that these eggs are subject to parasites. There is a little fly that belongs to the same group and is very small, and after the cluster of eggs is laid it deposits an egg in that cluster in each or a part of them. I took some of the ordinary orchard caterpillars and some of those clusters of eggs and put them into a breeding cage. Out of the cluster, I should think of over a hundred eggs, only about twenty or thirty of the caterpillars came out and there issued from the cluster, fifty or sixty of those minute parasites. I was careful to examine those cocoons often and I think there is a fungous disease that works upon these caterpillars.

Mr. BENNOCH. My mode of pruning is in June; I think it is the best time to prune, because the sap is then changed into the saliva condition and cutting at that time, it heals over more readily. Cutting later in the fall, the wood heals badly. I don't think you can change a Greening into a Northern Spy nor *vice versa*. If it is the nature of a tree to spread or grow up, it will do so; I have had a great many of them.

Mr. BRIGGS. With regard to pruning, I have experimented somewhat and believe if the trees are well fertilized and kept in healthy condition, that you can prune at any time of year. Perhaps if the tree is in an unhealthy condition there may be something in the time of cutting, but I don't think in a sound tree it makes any difference. I never saw any bad effects from pruning any time of year.

ORCHARD FERTILIZERS.

By Prof. WALTER VALENTINE, State College.

In collecting data for a paper on fertilizers for orchards the writer was struck with the unanimity of opinion among orchardists, that the most satisfactory results are obtained by the liberal use of stable manure. The well known value of this material in the production of general farm crops would naturally lead one to the conclusion that it would be equally beneficial to the orchard; for the same nutritive elements are needed for the growth of a tree and its fruit as are required for the production of a crop of grain, hay or roots. And the orchardist who has at command a sufficient amount of stable manure at a low cost is not likely to make a mistake in using it for his fruit trees. But there are many owners of orchards who are so situated as to render the use of stable manure impracticable. These are anxiously inquiring for manures from other sources. They are well aware that commercial fertilizers are expensive and that they need to be used understandingly in order that they may be profitable.

Commercial fertilizers, however, are the only alternative; and this renders a discussion of commercial fertilizers for the orchard imperative.

In discussing the question of manures the fundamental facts have been stated by lectures on this subject over and over again from one end of the State to the other, yet at the risk of being accused of "threshing over old straw," the privilege is taken of restating them here. They are these. All plants require that the following substances be furnished them through their roots, namely, potash, magnesia, lime, iron, phosphoric acid, chlorine and combined nitrogen. Other elements are taken up by the roots of plants but those named are essential. Fortunately only three of these substances are often found deficient in soils and those are potash, phosphoric acid and nitrogen.

The ash of all fruits is rich in potash and phosphoric acid. Wolff's tables gives for the

	Potash.	Phosphoric Acid.
Apple.....	35.7 per cent.	13.6 per cent.
Pear.	54.7 "	15.3 "
Cherry.....	51.9 "	16.0 "
Plum.....	59.2 "	15.1 "

Professor Atwater's Report of the Agricultural Experiment Stations, Middletown, Connecticut, for the years 1877-8, gives an analysis of the ash of the Rhode Island Greening with potash, 53.42 per cent; phosphoric acid 4.27 per cent. The average of two analyses of apple tree wood taken from Wolff's tables shows potash, 12. per cent; phosphoric acid 4.6 per cent.

European analyses give in parts of 1,000 parts of fresh apples, potash, 1.0; phosphoric acid, 0.4; nitrogen, 0.65.

As calculated from Prof. Atwater's report cited above, the fresh Rhode Island Greenings analyzed at the Connecticut Station contained per 1,000 parts, potash, 1.5; phosphoric acid, 0.12; nitrogen, 0.43.

Air dry apple tree wood according to Wolff's tables contains per 1,000 parts, potash, 1.3; phosphoric acid, 0.5.

Thus it is seen that our orchards draw heavily on the three fertilizing elements which are most likely to be deficient in our soils, both for the formation of the fruit which is taken away and for the formation of the tree in which these elements become fixed. Notwithstanding the heavy draft in this direction made by our fruit trees, it is no heavier than for the average of other agricultural plants. Wheat and other grains have in the ash of their seed nearly as much potash and more phosphoric acid than is found in the ash of our fruits, while in the ash of the straw as much potash is found as in the ash of the wood of the fruit trees. Peas, beans and other leguminous plants contain in the ash of their seeds as much potash as is found in the ash of the fruits with four or five times as much phosphoric acid, while the straw contains more potash and more phosphoric acid than is contained in the wood of fruit trees.

Hence it is seen that so far as the composition of the ash is concerned fruit trees require about the same manuring as other crops. And any system of manuring which produces good returns in the one case will probably do so in the other.

Special manures for special crops made up with regard to what a particular crop takes out of the soil have not met with general success, because no account is taken of variability of soils in plant food and of the varying ability of different plants to obtain the same nutritive elements from the same soil.

A special orchard fertilizer adapted to all soils and conditions is to be desired, but there is no probability that it will ever be found.

The orchardist like the general farmer should make a study of the needs of his soil by the means of carefully conducted fertilizer experiments similar to those undertaken by the Experiment Station, the results of which have been given to the public from time to time, and after finding out what his soil needs in the way of fertilizing materials plan his system of manuring accordingly.

The sources of phosphoric acid in forms suitable for application are bone meal and ground bone, Thomas-Slag, bone ash, fine ground rock phosphates, fine ground phosphatic guanos and acid phosphates. All of these materials except the acid phosphates should be thoroughly incorporated with the soil either by plowing and harrowing or by pasturing the orchard with swine.

Acid phosphates may be used as top dressing. The acid phosphates or super-phosphates are quickest in their action, after which would follow the various bone phosphates, Thomas-Slag and some phosphatic guanos while such material as South Carolina rock are slower to yield their phosphoric acid to growing crops. It is of great importance that all raw phosphates (*i. e.* those which have not been treated with acid) be finely ground. Bone meal and ground bone usually contain in addition to seventeen per cent or eighteen per cent of phosphoric acid about three per cent of nitrogen.

The chief source of potash in commercial fertilizers are the German potash salts from the mines of Strassfurt and Leopoldshall. These salts are put upon the market as muriate of potash, which contain an equivalent of fifty per cent—fifty-three per cent of potash.

High grade sulphates of potash and magnesia containing thirty-five per cent—fifty-two per cent of potash. Kainit containing eleven per cent—thirteen per cent of potash and a double sulphate of potash and magnesia containing twenty-five per cent—twenty-eight per cent of potash. The cheapest and perhaps the most reliable source of potash of these salts is the muriate of potash. The average cost of potash in the muriate as reported by the New Jersey station for the year 1886 was four cents per pound, while in the other forms it ranges from 4.2 cents to 6.5 cents per pound.

Another source of potash is wood ashes in which it is always accompanied by phosphoric acid and lime. Wood ashes is a valuable manure on most soils and for most any crop and has been found particularly valuable for orchards. They are quite variable in composition. The total potash varying 1.53 per cent in a sample of unleached ashes from pine wood from saw mill waste to 12.04 per cent in the ashes from birch wood from a spool factory waste.

The average of thirteen analyses made at the Maine Experiment Station of unleached wood ashes from various sources gave 3.65 per cent phosphoric acid, 9.19 per cent potash and 36.48 lime. The highest per cent of phosphoric acid found in any of them was 6.05 per cent in the ashes from birch wood and the lowest was 0.64 per cent in ashes from spruce wood.

Nitrogenous manures are found in the market in the form of nitrate of soda, sulphate of ammonia, dried blood, meat scrap, fish scrap, tankage and in many other forms having doubtful value, such as leather meal, and hoof and horn meal.

Nitrate of soda should contain from 15-16 per cent of nitrogen and sulphate of ammonia from 20-21 per cent. These two manures are readily soluble in water, and if used in large quantities might prolong the period of growth of wood so that it would not ripen sufficiently to withstand our severe winters. The other nitrogenous manures mentioned would have to undergo decomposition in the soil and in consequence would yield up their nitrogen more slowly and could be used for fruit trees with greater safety. A good article of dried blood ought to contain 11 per cent of nitrogen, and dry fish scrap and tankage from 8-9 per cent of nitrogen with 7 or 8 per cent of phosphoric acid.

Nitrogen from whatever source in commercial manures is the most expensive fertilizing material, costing twice as much as soluble phosphoric acid and about four or five times as much as insoluble phosphoric acid and four times as much as potash.

Owing to this fact and that all of the leguminous plants such as the clover, beans, peas etc., act as collectors of nitrogen, it would seem advisable for orchardists who are dependent on commercial manures for their fertilizing material to avoid the necessity of purchasing nitrogenous manures by the liberal use of phosphoric acid and potash and the cultivation of red clover in the orchard and feeding it off either with sheep or swine.

On clay loam soils it is the opinion of the writer that it will be found necessary to grow clover, or some other crop, which will leave a large amount of organic matter in the soil, when using commercial manures exclusively, if the best results from the use of those manures are to be obtained.

The organic matter not only furnishes nourishment for subsequent crops by its decay but it has a physical effect on the soil similar to stable manure and which cannot be produced by commercial manures alone.

At the college farm at Orono the experiments with such raw phosphates as South Carolina rock, indicate that it does not readily yield up its phosphoric acid to red clover the first season, and that acid phosphates furnishing soluble phosphoric acid or raw phosphates furnishing a considerable quantity of citrate soluble phosphoric acid are more reliable for a clover crop.

In selecting phosphates for orchards this point should be taken into account if in addition to supplying phosphoric acid to the trees it is desired to grow clover as a collector of nitrogen and for its physical action on the soil.

Experience in the use of commercial manures has shown that, in general, phosphoric acid is required in larger quantities than either potash or nitrogen and for this reason the mixed fertilizers put upon the market contain the former in a much larger proportion than the latter.

These fertilizers, it is true, are designed for general farm crops, but it has already been shown that the orchard draws upon the supplies of plant food in practically the same lines and proportions as other crops. It is, therefore, a reasonable inference that phosphoric acid should form the larger part of an orchard fertilizer, and in offering the formulas given below this consideration has been kept in mind.

The following fertilizers applied as indicated may be expected to produce good results :

First. Finely ground bone meal at the rate of 500 pounds to 1,000 pounds per acre thoroughly worked into the soil.

Second. Bone meal or coarse ground bone meal at the rate of 500 pounds, and unleached wood ashes at the rate of fifty bushels to 100 bushels per acre mixed together kept moist for six months. This mixture would be most effective when worked into the soil but would be beneficial when applied as a top dressing.

Third. Dissolved bone-black 400 pounds, nitrate of soda 100 pounds, muriate of potash fifty pounds. This mixture may be applied as a top dressing, and would probably need to be repeated after three or four years.

Fourth. Acid South Carolina rock 500 pounds, sulphate of ammonia 100 pounds, and muriate of potash fifty pounds per acre. This may also be used as a top dressing.

Fifth. Acid South Carolina rock, 200 pounds; fine ground South Carolina rock 600 pounds; nitrate of soda, 100 pounds and

muriate of potash fifty pounds per acre. To be well worked into the soil.

Sixth. Acid South Carolina rock 200 pounds; fine ground South Carolina rock 800 pounds, and muriate of potash fifty pounds per acre. To be well worked into the soil. The best results will be obtained with this mixture on soils containing considerable organic matter or with a clover seeding.

Seventh. Unleached wood ashes at the rate of 100 bushels to 200 bushels per acre. The best results will be obtained when worked into the soil, but they do well in most cases when applied as a top dressing except mill ashes which have little effect as a top dressing. The first, second and seventh have been used often and in most cases have proved satisfactory on soils needing the elements which they contain.

INEXPENSIVE SOURCES OF FERTILITY—POULTRY.

By Dr. GEORGE M. TWITCHELL, Fairfield.

The value of orcharding in the State of Maine has never been pressed upon the attention of the public as its merits demand. Friends of the apple and plum have been content to carry on a successful business, with no attempt at creating special public interest in this branch of farm husbandry. During the years, hundreds of thousands of dollars have been flowing out into the orange groves of Florida or the vineyards of California, or, later, into the still more hazardous investments in the West and South. Meanwhile the hills of the good old State of Maine remain, the climate is the same, Maine grown fruit has stood at the head, and those who planted here have been gathering year by year sure returns, and seeing their lands steadily increase in value. The special advantages here for orcharding are not appreciated to-day, and we who still keep faith in the old Pine Tree State have a mission to perform. From centre to circumference Maine would sing under the weight of increasing harvests if we would but put a stop to negative teaching and negative examples. While the grape grower of California has been selling his luscious Hamburgs for \$15 a ton, the potato grower of Aroostook has received \$30 for his Early Rose. While the selected oranges of Florida have brought the growers one cent each,

the Baldwin and Greenings of Franklin county have been eagerly sought for at five to six dollars a barrel. While the officials of the State are calling attention to and advertising the abandoned farms, simply to gratify the curiosity of the curios, throwing the unconscious influence of the State against its best growth and prosperity, we must be alive and alert. The farms of Maine for the boys of Maine should be our rallying cry, and by positive work the steps of successful farm husbandry indicated. We do not want to turn our farms over to a foreign population, but rather build up within our own borders, out of our own blood, the wonderful resources of hillside and valley. Here is where our most earnest efforts must be directed; and when we move out of the grooves of habit, it will be to consider how these waste places and abandoned farms can best be made to blossom and bear fruit.

This leads directly to the question of fertilization. If any attempt is to be made to reclaim the rocky hills and knolls lying all about us, it must be by an inexpensive system of fertilizing. Three sources are open to us, which will insure results and yield profit in and of themselves. I believe the time is coming when we shall turn from the fertile fields so easily cultivated, and, as a business investment, seek rougher soils for the trees. Growing these where the moving of barnyard manure is too expensive, we seek the commercial article, and find a measure of relief. But it is when we open the bars to that little animal "with a golden foot" that we begin to realize that profit comes not only from the sheep, but also from their work about the trees. If the orchard be well established, the soil rocky and hard to work, put in a breaking-up plow in the form of some sharp-nosed porkers. They will open the soil, let in the air and sunlight, fertilize the trees, increase both leaf and fruit, and at the same time render pork-making profitable. A miracle can thus be wrought in an old orchard in two years' time, at no expense to the owner. But there is another line of successful fertilization and profit combined, though not so applicable to older trees, unless in connection with the swine, and that is poultry culture. Give the hens the waste places about the farm. You can't afford to yard them in the mowing patch or corn field. Get them into the young orchard, and note how the trees and chickens will become firm friends and helpers of each other. Here is a field at once inviting and profitable, and it is to this I am asked to call your special attention. The poultry industry has within the past ten years assumed gigantic proportions.

The value of the egg product to the State of Maine must to-day be reckoned by the millions. At the same time, consumption has so increased that prices for 1890 ruled higher than for several years. The facts are, that as a people, we are beginning to value articles of food for what they contain, and not with the one thought of first cost; and hence the use of eggs is being extended. There can be no danger of over production, even in brains, because only a small per cent will persist in their work of development. I believe that it would be a paying investment to put a lot of hens in a plum orchard, even if they did not produce an egg. Here is an industry of special value to those living near good markets, or along the line of our railroads. The plums sold in Maine markets are largely grown in California. We pay a living price to the grower there, transport across the continent, and then complain about the quality of the fruit and the poverty of the farms of New England. Hardly a farmer in Maine but might add hundreds of dollars yearly to his income out of a plum orchard, and the hens will take care of the question of fertilization, and also that more important matter, the curculio. A poultry grower in Massachusetts fenced a portion of his plum trees, and stocked with poultry, and found in a series of years that where those on the outside had been stung to the extent of sixty per cent, on the inside the loss was less than two per cent.

In the near future, Aroostook will supply our markets with late plums, and the energetic, business farmers there reap a rich harvest; while those enjoying greater blessings, near to the good markets, will keep on howling about the tariff, the silver bill, or the next candidate for postmaster, and let the golden opportunity slip through their fingers. The results of breeding, feeding and education on the little body we call a hen are such that while her total weight is but about three pounds, she is capable of taking the food we give and converting it, in the wonderful machine within her, into about twenty pounds of eggs yearly, and, at the same time doing faithful service among the trees, seeking for grubs worms and insects, and enriching the land. Lands worth to-day less than five dollars an acre may, within fifteen years, be made to pay for first investment, interest and taxes, and also the labor account in full, and then sell readily for three hundred dollars an acre; while the hens, which have done the work of fertilizing, will have yielded a net income of one dollar and a half per head yearly. All this is possible to any young man of Maine who has faith in himself, in the

orchard and the hens, and a liking for the business. Of the value of hens over and above any other animals in taking care of the injurious insects which infest fruit trees, much might with justice be claimed. This will suffice. The man who stocks his orchards with poultry will grow larger and better fruit, while the per cent of choice stock will be greater than his neighbor can possibly secure in any other way. Not an enemy to the fruit or tree, which flies or crawls, but the hens will look after, unless it be the tent caterpillar. With all these facts before us, is not this an industry to be encouraged by any and all the agricultural bodies, or those working in harmony with them? The economic side of this question is what gives it so much importance at the present time. Here are the rocky hills, the light soils, the so-called abandoned farms. Here are all the conditions for successful fruit growing. and here is another industry which may be combined, with but little expense, and while saving in so many ways, be made a source of great revenue.

Young men, you can buy for one thousand dollars a farm of fifty or more acres. with comfortable buildings, in a fairly good location; the poultry houses will cost you from twenty-five to thirty-five dollars each, if you hire the labor done, and they will accommodate fifty hens, and the hens can be bought for from thirty to forty cents each. The standard apple trees can be secured for from fifteen to eighteen dollars a hundred, so that the entire outlay for farm, buildings, for 1,000 hens and fifty trees, will not exceed \$2,000. Your hens will be worth what they cost to kill at any time. The net income from the flocks should be at least one thousand dollars, and from that to fifteen hundred, while at the end of ten or twelve years your twelve acres of orchard which sell for at least three hundred dollars an acre, the hens having attended to the question of fertilizing without expense to you. The returns from the orchard meanwhile will surely take care of the interest account, taxes and labor item, leaving the income from the hens *net* to the farmer. This is not an unreal picture, but may be made real to the young men of Maine who fancy the work, and have a high ideal toward which they are constantly climbing. In any line of work to-day, under present exacting conditions, the cost of production must be carefully considered. This necessitates the introduction of economic methods and practices. And right here I rest my claim for inexpensive fertilization of the orchard through the introduction of sheep, swine and poultry, with the balance strongly in favor of the poultry, because by and with it more can be accom-

plished than otherwise is possible. If one has not the means to start on so extensive a scale, then the door is still open, and with small flocks he may lay the foundation for future prosperity. Viewed in any light the path opens in this direction where, by combining the trees and flocks, the problem of to-day may in a large measure be solved.

If you cannot buy a farm, go up into Franklin county and purchase ten acres of cheap land, which can be secured for from three to five dollars an acre. Buy one hundred trees, and build a single poultry house. Start on an inexpensive scale and grow into the business as you come into a knowledge of the controlling conditions. In ten years' time you will have established a good business, while the acres in bearing trees will sell for from \$300 to \$500 an acre. The solution of the vexed questions of to-day lies in the door-yard, barns or barnyards, in the wastes about the farms, and in the little things too often overlooked. Let your eyes fall on the little objects we have been stumbling over, and, utilizing these, and the cheap lands, the greater prosperity of the State, and also the individual, will be secured.

INEXPENSIVE SOURCES OF FERTILITY—SWINE.

By Professor J. O. WINSLOW, St. Albans.

The pig is not the least valuable of the animals about the farm. He is able to convert a given amount of food into fat in a very short time. Pigs should not be kept long enough to be called hogs. During the first three months we find the greater profit. The unwise practice of keeping shoates through the winter cannot be too severely condemned. Pig growing, to be profitable, calls for care and attention. The materials necessary to build a body must all be supplied. In a native state he roams at large, and the most simple and practical way for those with orchards, is to fence and stock with pig enough to subdue the grass and work up the turf. At the same time the pigs will fertilize. In the soil, the injurious insects hide, and these are rapidly taken care of by the pigs. A couple strands of barbed wire, with a board at the top, will suffice to restrain them. When fattening time comes, place them in small pens and force rapidly for the market. The orchard is the best place to be found for the breeding sows. The farmer who follows this line will find profit from the pigs in the orchard.

RESULTS OF SPRAYING.

By S. C. HARLOW. Bangor.

I will endeavor in a plain, practical way to give you some thoughts and observations connected with my experiments in "Spraying" for the destruction of some of the insect enemies of the orchard, of which I shall confine myself to those attacking the foliage and fruit, especially the larvæ of the codling moth, *carpocapsa pomonella* in its attack on apples and pears; the curculio in its attack on plums and cherries and often on apples in localities where the insect abounds and where there is a scarcity of plums and cherries in which to deposit its eggs.

If to the list of the codling moth, curculio, caterpillar, canker worm and currant worm (a most formidable list beginning with C), to say nothing of leaf-rollers, "*et omne genus*," for whose destruction spraying with arsenite has proved to be the only successful remedy, if to this list we could only add one more insect viz., the apple maggot the larvæ of *trypeta pomonella* that great destroyer of the apple whose steadily increasing numbers if not checked may soon make him a rival of the codling moth in his injury to the apple, could we but include him also among this list for which spraying is a specific, it would indeed be the occasion of the greatest rejoicing to the orchardist and would mark a new era in the science of spraying. Insecticides in the case of *trypeta pomonella* cannot help us, I am very sorry to say, "*trypeta*" cannot be destroyed by spraying, viz., the parent fly with its long ovipositor deposits the eggs from which the young maggot hatches so far beneath the skin of the apple as to entirely protect it from the spray, in addition to which fact the lateness of the season at which the eggs are laid would make it unsafe to use insecticide even if the young larvæ were in reach of them. If, as Professor Harvey urges all fruit raisers to do, they would destroy all infected fruit soon after it falls to the ground, before the insect enters the earth, and also burn the refuse of apple bins and barrels in which the fruit was stored, and so prevent escape of the pupæ, it would largely diminish the increase of this pest especially in orchards isolated, and if in addition a law was passed to prevent importation of infected fruit as we do of infected cattle, it would be a most effectual method to prevent its increase. To one at al

familiar with the use of the two most common insecticides, viz.: Paris green and London purple, one of the most noticeable features is the great lack of uniformity in results as to the proportion of sound fruit thereby saved by different orchardists and also as to the injury done to the foliage. This injury to foliage is always liable to happen to a greater or less extent, when the numerous conditions or factors involved in successful spraying are not well understood in theory and carried out in practice.

Let us now examine briefly some of the conditions or factors on which successful results in spraying depend. The first one I will mention is the use of the best insecticides which involves a consideration of the comparative merits and demerits of London purple and Paris green. One of the greatest objections to London purple is its entire solubility in water, hence where used in the same proportion as Paris green it often scorches the foliage and scars the young fruit to such an extent as to ruin both for the season. Paris green on the other hand being but slightly soluble in water proves when used in the right proportion not only much safer for the foliage but also equally effective in destroying the young larvæ in the calyx of the fruit.

A second point of merit in Paris green over London purple is found in the fact that while both of them are liable to adulteration, the Paris green is usually but slightly so, being of much more uniform strength than London purple, so that by getting it of a reliable chemist or manufacturer, a nearly pure article of known strength may be used. London purple on the contrary, as is well known, is always adulterated so as to vary greatly in strength, consequently it is impossible to tell without first testing each lot used, by spraying it on foliage and waiting several days or a week to see if injury is done by either its unknown strength or its perfect solubility: whereas the Paris green, being of known strength and nearly insoluble in water, makes it a much safer insecticide.

Having found from its greater purity and insolubility that Paris green is much the safer remedy of the two for the foliage, and equally effective in results, a most important question to answer is, what quantity effective as an insecticide can be used without injuring fruit or leaves of the apple tree. Before attempting to answer this, allow me to mention several important conditions or factors in the science of spraying which have an important influence in the results, viz.: 1st, the variety of tree, as of apple or plum; 2d, the youth or matu-

rity of the foliage, as in the first spraying for the apple at the first of June. the leaves will bear a stronger solution than they will at the last of the month or later. This seemingly curious and anomalous feature is proved true in actual practice; 3d. the momentum with which the spray from the force-pump strikes the leaves; 4th, the fineness of the spray as determined by the fineness of the nozzle; 5th, the condition of the weather at the time of spraying and for a week following. The last and most important factor of all which I will now mention as influencing the amount of Paris green which can be safely used (as in our question before asked) is this, viz: the equal suspension of the Paris green throughout the barrel to which the force-pump is attached. The great specific gravity of this substance, causing it to quickly settle to the bottom of the barrel, thereby precipitating an undue proportion of the insecticide around the suction of the force-pump which always extends to the bottom of the barrel.

Having just simply enumerated these six factors which enter into and greatly modify the results connected with our question before stated, viz.: how much Paris green can be used with safety and effectiveness in spraying for the apple at the first application? In reply, as a general rule I have found that fifteen ounces of a pure article to 300 gallons of water or in the same proportion two and one-half ounces to fifty gallons, is sufficient for the apple; for the pear, plum and cherry not to exceed two ounces to fifty gallons of water as their foliage is more tender. When the conditions above noted are complied with I have no doubt that two ounces to fifty gallons will be found sufficient for the first spraying of the apple and should never use more than that amount for subsequent sprayings. Condition of weather at time of spraying and for the next week I consider one of the most important factors above noted; a very hot sun at the time increases the injurious action of the spray on the foliage, while on the contrary a heavy rain within a day or two after the spraying will destroy all good results from the operation. The limits of this article will not permit explaining the details of other conditions affecting this many sided and most interesting study of spraying. But the most interesting and important fact to which I have not yet referred is that even in its present imperfect state, the conditions already known being observed it will save from the destruction of the codling moth, the curculio and various other insect enemies, at least seventy-five per cent of sound, luscious, full-grown

fruit. This proportion of apples and of some varieties a larger one, it has already saved in my own orchard. The science is but yet in its infancy and I shall be greatly disappointed if further developments and practice do not produce a much increased result.

This article would be very incomplete to omit stating the reason for spraying. The wise man has said, "There are times and seasons for everything under the sun." This is eminently true of spraying. The time, varying in early or late varieties of trees and in different localities according to the forwardness of the season, is about the first of June, for the apple at the first application. When the fruit gets the size of a cherry it is an index that the time is at hand for the codling moth (which is rarely seen in the daytime) to be depositing its eggs at night, one only in the calyx of each apple. At this time the calyxes or blossom ends at the fruit are all invariably turned upward toward the sky, in a position to readily receive the egg of the moth and also to receive the spray as it descends on the tree from the force pump. In our climate there are always two broods of codling moths, but we are now only considering the first brood which continues to hatch through the month of June and July. The spraying should be repeated in from ten to twelve days and should be done the third time for the best results to the crop.

The proper season for the first spraying of the plum tree, to destroy the curculio, is just as soon as the blossoms have entirely dropped from the tree. Here let me call attention to a very prevalent mistake in spraying the plum while in blossom, the results of which, in regard to the curculio, are a failure, as its time for work does not begin until the plum is larger than a currant. When sprayed in the blossom, instead of the curculio it is the honey bee which suffers, as well as the owner of them. Not only is the storing of honey checked by the needless destruction of the bees, but also the fertilization of the blossoms of all varieties of trees is interfered with by this worse than useless "slaughter of the innocents."

I am well aware, Mr. President, that in advocating the merits of Paris green over London purple as well as in reducing the amount of it to be used fifty per cent, I have antagonized opinions given in years past, through the columns of newspapers, many of which were not based on careful, practical experiments; but whatever may be the discrepancy between present and past opinions as to the best insecticide and as to the most desirable amount to use, these differences may be partly accounted for by different conditions connected

with the various experiments. In conclusion I will say we must not forget that this is pre-eminently an age of progress, that not a year passes but that in the science of entomology, as in all others, new facts and new truths are being discovered which, by their development and application, must soon produce still more satisfactory results than yet obtained, both to the scientific and amateur pomologist as well as the practical orchardist.

DISCUSSION.

Ques. I see that horticulturists are agitated over the fatal effects of Paris green. It is said that it floats in the atmosphere and is very dangerous to human beings?

Ans. Mr. Harlow. I should be glad to read extracts from some of the most able scientists in this county. I have experimented with London purple and Paris green; it has been fully established that there is not the slightest danger in the results. I will not attempt to go into the scientific investigations. There is not an infinitesimal amount of Paris green in proportion to the water; the slightest drop of homœopathic strength lodges in the calyx of the apple, and every rain and shower washes and removes every particle so that the strictest analysis fails at the end of the season to find a trace of it. It has been proved also that after one or two heavy rains, there is no danger in cutting the grass and letting the animals run under the trees.

Ques. In spraying the tree, is there enough to hurt the caterpillar?

Ans. If you have caterpillars on your trees, you will see that they will soon leave you, and all other insects.

Prof. Munson. There is not much more to be said on the subject. Mr. Harlow has shown conclusively and his display of fruit shows more clearly still the beneficial effects to be derived from spraying. As for the injurious effects to be obtained from the use of fruit after spraying, I think there is no danger of eating the fruit after maturity.

The danger comes in the use of the insecticide itself, rather than the danger after the maturity of the fruit. I was very glad to know that he has proved successful in using a solution as diluted as he does. Commonly, solutions used are not as diluted,—about a pound to 150 gallons of water is the ordinary strength for apples and pears. As for the spraying, I notice in Mr. Harlow's remarks, he says that

the spraying is very detrimental to the foliage later in the season, but is not noticed early in the season, when the tree is growing and the foliage comes out rapidly. This defoliation is due to the effects of the hot sun after spraying.

This question of spraying during the hot sun is one we need have no hesitation about discarding; the trouble arising from spraying during the hot sun is very trifling. I think there is no question in the minds of fruit growers as to the advantages of spraying for the codling moth.

MR. VINTON. I confess that I share in this idea of danger from using Paris green. I made myself sick abed by putting Paris green on my potatoes. I take it for granted that in throwing it into a tree, it is the poison that kills the caterpillar.

Ans. It takes but a small amount of arsenic to kill the caterpillar.

Ques. How does the caterpillar take his first meal?

Ans. By boring a hole from the outside of the calyx into the apple. What little he gets in the calyx of the apple is enough to kill him.

Ques. Suppose there was a man in the tree and the liquid was thrown on him, would it hurt him?

Ans. I think it would; I think he had better get out.

Ques. This Paris green is insoluble in water. It falls upon the tree, the water dries off and leaves the Paris green in a flaky substance to float in the air, does it not?

Ans. Yes, the infinitesimal amount that is used. Some of our ablest professors have experimented and given the results of the experiments that prove beyond a doubt that it is a perfectly safe operation.

MR. GILBERT. I am cautious about this society recommending the use of a deadly poison in any way. In the use of poisons there is less danger in the form of spraying, than as a powder or flour. We want to reduce it as much as possible—find the minimum amount.

Prof. MUNSON. When a pound to 250 gallons of water was used and the grass was cut and fed to a horse, no injurious results followed.

MR. GILBERT. Certainly I would go *slow* before I would feed my stock on Paris green. If you don't give Nature time to throw it off it must be harmful. I don't want such an impression to go out.

STRANGER. I have used Paris green for a long time. We must understand that it is a deadly poison ; but with careful management there is no danger. Once in a while we hear of a man being killed with a cart wheel ; but that is no reason why we shouldn't use cart wheels. It is just the same about using Paris green.

MR. POPE. Our men cover their faces with a moist sponge. The first time we used it, two men were sick two days. We have been very careful about the use of it since.

NEW VARIETIES.

During the year the attention of the Society has been called to several varieties, hitherto unnoticed. Many of those received by the officers have been identified as varieties already named. Several seedlings appear to have sufficient merit to warrant testing.

These seedlings were brought to the Secretary by Mr. A. M. Furbush, East Wilton. The trees which bore them were grown from seed planted over eighty years ago. The family has always prized the fruit highly for domestic use, and the apples were named for members of the family years ago. One, the Sally, is a large, handsome yellow-skinned apple nearly covered with red. It is of good flavor, and keeps about the same as the Baldwin. Specimens of the Sally were sent to Mr. Van Deman, who says of it : "The variety which you call Sally is indeed quite a good one and I think worthy of notice. If it is hardy it might do to propagate in the North. In quality it is quite good and the color is also very good, being rather a brilliant red."

Mr. R. S. Sampson of Temple called attention to a seedling which certainly has some good qualities. In size and color it somewhat resembles the Early Harvest. The flavor is crisp, tart and agreeable. It keeps well into the winter. Mr. Sampson set scions the past spring and we hope to learn more of the apple in future.

Several seedlings were sent us from Aroostook county. These and others examined from that section afford satisfactory evidence that Aroostook can raise good apples. We are inclined to think there are better varieties that can be produced successfully there, though these may be desirable to propagate from in the future.

FRUIT CULTURE—ITS POSSIBILITIES IN MAINE.

By D. H. KNOWLTON, Farmington.

From my own observation and the information kindly furnished me by a large number of fruit growers, I do not hesitate to affirm that Maine offers rare and unprecedented opportunities for the profitable investment of capital in this industry. And for a term of years to come I doubt if there is any State in the Union where labor is more sure of liberal returns, if properly directed. It is the purpose of this paper to bring before the public two things, as matters of fact not generally known: First, that Maine offers the most favorable conditions for fruit culture; and, second, that the profits are larger than in any other line of agriculture, and sufficiently large to warrant extensive development.

MAINE OFFERS FAVORABLE CONDITIONS FOR FRUIT GROWING.

A very large part of our area is found to be well adapted to the growth of fruit. The apple tree seems to grow in our soil almost spontaneously, and wherever in the past seeds may have been scattered, we may find the trees growing. They may be unthrifty and neglected, and though buried deeply in the drifted snows of winter, the severity of our climate seems, if anything, to increase their vigor. There are growing in many parts of the State, trees that were planted by the men who cleared the land years ago. One of these old orchards from which I have often gathered fruit, is well nigh a century old. The apple trees continue to bear, and pear trees growing among them that sprang from seed planted in 1795, refuse to entertain the blight or any other scourge known to pear growers in more favored sections. Though sadly neglected, these old trees never fail to bring forth good crops of old-fashioned pears, pleasantly reminding us of the industry and life of those long since passed away.

There is an orchard in the town of Union containing 200 trees, and covering two and one-half acres of land. It was planted 70 years ago. In 1888, this orchard, nearly three-quarters of a century old, bore 650 bushels of apples; in 1889, 400 bushels, and in 1890, 350 bushels. From the crops these three years the owner received \$180, \$300 and \$350, respectively, and he is confident that his

venerable orchard pays him a net profit of seventy-five per cent. In many places these old trees are sadly neglected. They often bring to the mind sad thoughts, as they remind us of those who cared for them in early days, and from their grateful limbs plucked the first fruits they bore. But they refuse to die, and stand firm as the rocks from whose crannies their roots gather the scanty food allowed them in their old age. They are living witnesses, grown gray and mossy with the years, that the apple tree is thoroughly hardy in Maine. And from this we also conclude that only artificial conditions have given us stock and varieties that will not stand our climate.

SUPERIOR QUALITY OF MAINE FRUITS.

It has not yet been explained why any fruits we can mature in Maine possess such qualities of excellence. That they surpass those grown where the seasons are longer, and one might think, more favorable, is generally conceded. The fruits we can mature to perfection have the most delicious qualities known to the varieties. Some time, as the years roll by, our experiment stations may be able to explain why Dame Nature chooses to make Maine Baldwins a little better than any others in the market. If you will look at the market reports any day, you will find "Maine Baldwins" are quoted by themselves, and that they are a little higher than New York or Western Baldwins. The market has found out the quality, and it is for us to take advantage of it by producing better Baldwins still, and more of them. At the last Bay State Fair, held in Boston, in 1889, the officers of our society decided to show some Maine apples. Of this collection, President Pope said in his annual address, last year: "Care was taken to make a small collection of choice apples, rather than a large one of nondescript fruit. Only twenty-eight varieties were taken, and these were collected mostly in Penobscot and Franklin counties. The exhibit was said to be the finest in the hall, but as there was no premium for best collection of apples alone, it was necessary to enter for premiums in the general collection, which included pears also. In this class they were awarded second premium. The single plates were entered, and seven of them won first premium, two, second, and the other, third. From this it will be seen that the collection was a choice one, and we have reason to be proud of the result. Our object in exhibiting the apples was not to secure premiums, but to show that Maine can grow as fine fruit as any other section."

While we may never be able to raise so fine pears as are produced in other localities, we may safely say that of those varieties that are known to thrive here, we can produce good fruit. There are fewer enemies to the pear in Maine than farther south, and so far as developed, the industry pays well. Cherries and plums are raised as easily in Maine as elsewhere, and the fruit is of excellent quality. So long as it costs \$500 a car to bring fruits across the continent, it does not seem that New England, and especially Maine, should not produce a large part of these fruits used in the East. Excellent strawberries and other small fruits are successfully and profitably raised in Maine. The season is just right, for at the time they are ripe they have the monopoly of the market. Railroads and boat lines now make it possible for us to gather fruit one day, and lay it down in the city markets early the next morning. To the extent already developed, the small fruits have paid well. Cranberries and blueberries grow naturally on our mountains and plains. The former respond quickly to culture, and by many found a paying crop. The latter have received little if any attention at the hands of fruit growers. They grow well in my garden, and I am glad to notice that Dr. Sturtevant is giving some thought to their culture, for I believe they will have a place, before many years among cultivated fruits.

PRESENT PROFITS OF FRUIT CULTURE IN MAINE.

I am able to give you some of the present results in Maine fruit growing. As I have examined these figures, they compare favorably with fruit growing in other sections; and so far as agriculture is concerned, it certainly leads any other feature of it here in Maine. From the returns received, I find but few who have been raising apples for market over thirty years. One of these, Mr. Phineas Whittier of Chesterville, began forty years ago. He began labor as a fruit grower by the purchase of ninety acres of old rocky pasture and woodland for the sum of \$400, for which, he once told us, he was able to pay only \$75 down. During the past ten years, this piece of property has produced, on an average, nearly \$2,000 worth of apples each year; and the past three years his receipts were \$2,400, \$4,200 and \$3,000, respectively. Eighteen hundred eighty-eight was the year when so many people said "apples don't pay in Maine." It may be a matter of interest to add here that his No. 1 Northern Spy, for 1889 and 1890, sold as high as \$8 per barrel. Mr. Whittier's \$400 invest-

ment has grown into the most valuable farm in Franklin county, which, with his own industry and energy, he has supplied with fruit-house, evaporator, and other appliances to aid him in his operations. He now has nearly 6,000 trees, and the next ten years I do not doubt that his fruit farm will produce double it has the past ten.

Another gentleman says: "I came into possession of my farm in 1850, and there was quite an orchard on it for those times, engrafted mostly to Roxbury Russets. The Russet is the apple for me to raise, instead of the Baldwin, as it bears every year, while the Baldwin bears only every other year, and by keeping until spring, will bring nearly twice as much per barrel. Take it for ten years, I think I get as many barrels of Russets as I could of Baldwins. In reckoning the net income of the orchard, the dressing, taxes, barrels, interest of money, time spent in digging borers, trimming trees, picking, sorting and barrelling and hauling apples to market, were considered." During ten years, this orchard of about 1000 trees, two-thirds of which are in bearing, has averaged its fortunate owner \$1,000 a year; and the net profit, carefully figured, as you will observe from his statements, is fifty per cent.

For market purposes the large majority have not been raising fruit over fifteen years, and a great many not over ten years. From these statements it will appear that the industry is only in its infancy, and that under favorable conditions it ought to grow into an industry of immense proportions.

Depending somewhat upon the stock, varieties and conditions affecting growth of tree, etc., the trees have begun to bear in three to fifteen years, but we find the average time, when the market varieties from trees set have borne in considerable quantity, is from seven to ten years. The Northern Spy and King are among the most tardy. There is one orchard in Franklin county which has been set twenty years. In 1889 there was a King tree in this orchard that bore six barrels of No. 1 apples, that sold for \$6.50 per barrel—\$39 from a single tree! Suppose we call it \$35, an acre of seventy such trees would bring a net income of \$2,450. The best Kings have rarely sold for less than \$4 the past five years, and at this rate the income from the acre would be \$1,680. Or call it, if you please, \$2 in an abundant year, and then the acre stands at \$840. Multiply this by ten acres, and a man has in Maine a bonanza as rich as a silver mine in Nevada.

There are many small orchards from which the owners the past ten years have realized a steady income, and there are now hundreds of orchards that contain 500 trees and over, and I think I may safely say that not over one-half of the apple trees set for market purposes are bearing fruit. One grower, where land about his orchard is worth from \$3 to \$5 an acre says: "My crop of apples for 1890 is as follows: Sold 305 barrels for \$4 per barrel. I have on hand 2500 pounds of evaporated apples worth sixteen cents per pound. I cannot give you an account of expenses, but this much I will say, it leaves me a fair margin, and is the only crop that will do it." One thousand six hundred and twenty-five dollars from land of such value in Maine! Think of it, young man, before you turn your back upon your native State! Where can you find richer returns in this country for good, honest labor? And this orchard farm is still young, and every year its trees are becoming more fruitful. It is better than corn at fifteen to twenty-five cents a bushel 2000 miles from market. It is better than three or four cent beef on a distant cattle ranch. It is better than ten hours daily work within the walls of a noisy factory. It is life and joy in the open air, it is independence, life and happiness, and all the luxuries for home and loved ones that wealth and competence can secure.

VALUE OF ORCHARD LANDS.

An interesting and important matter connected with the subject under consideration is the remarkably low value of orchard lands. It seems to me that when the price is considered, the opportunities orcharding presents for profitable labor and investment are without a parallel in this country. For instance, Mr. Whittier says in his report that land adjoining his orchard has a market value of \$5 to \$10 an acre, and that when he began his operations his own land was worth \$5. Another grower in Franklin county, who the past four years has realized \$500 annually from a small orchard, says land adjoining is now worth only \$12 an acre. In Kennebec county, in the town of Winthrop, one of the best orchard towns in the State, the price is given from \$10 to \$20 per acre. In the town of Turner the Rickers say land is worth \$50 an acre, and others place it from \$20 to \$50. And so I might give figures from all parts of the State, but it will suffice to add that good orchard land may be purchased at prices ranging from \$5 to \$50 per acre.

As I have investigated the subject, I am satisfied that Maine fruit growers, even after their land is in orchards, do not place a fancy value upon their orchards. There is a wide margin in the figures given, but none of them exceed \$500 per acre, and some are as low as \$25. But when we consider that before trees were set the land was worth from \$5 to \$50, we can readily see there has been a large increase in value. This, by the way, is one of the important features of the industry. About ten years ago, a young man in my county bought a tract of land for \$10 an acre, and began setting trees upon it. He now values it at \$100 an acre, and it is worth it, for with only 100 trees in bearing, the past year, he sold \$450 worth of apples. Don't you think this is a good investment for a young man to make?

The orchards in the State are not over-valued, and within my own observation are frequently sold at very low figures. Without locating, I will refer to several. In 1888, the year when croakers said there was no money in apples, a small farm was purchased. Some twenty years before, a previous owner began to set apple trees. The price paid was \$5,500. The fruit the same year netted \$1,200; the next year the returns footed up the same amount, and when the 1890 crop is all sold the owner expects the amount will be \$2,000.

There was another man who got sick of farming, and thought he would rather drive a city truck team. He did not rest content until he had sold his farm for \$2,100. There was upon a portion of the farm 300 young, thrifty Baldwin trees, that bore the new owner nearly 300 barrels of No. 1 apples the first year. Each year since it has borne a good crop, and all the while the trees are growing larger, and rapidly gaining in productive capacity.

Only the past year a young orchard, sloping towards a beautiful body of water, was sold for the sum of \$3,000. There were many who thought the price was fancy, and that the purchaser, who had orange groves in Florida, had been taken in. Hanging on the trees, without a dollar's expense to himself, the purchaser sold the crop of 1890 for \$1,500. The fruit buyers knew what they were doing, too, for when the apples were gathered there were nearly 500 barrels of No. 1 fruit. Do you know of safer or better investments in the West or South?

These opportunities are not numerous in Maine, but at the same time the writer knows of several that offer great inducements to a fruit man who is on the lookout for good investments.

It should be stated that in the figures bearing upon profits in apple culture, with one or two exceptions, the inferior fruit is not taken into account. Nor as yet, so far as I can learn, is any one in Maine producing apples for the purpose of evaporation. This exception is in Winthrop, where an orchard of several hundred Duchess were set for this purpose. The 1890 crop, I am informed, however, was sold green for four dollars a barrel, which ought to be quite as satisfactory to the owner. The demand for canned apples is rapidly increasing, and a foreign demand is already developed far beyond the supply. One of our largest exporters the other day assured me that in his judgment the foreign demand for canned apples would be greater for the next few years than could possibly be supplied.

It is not the purpose in this paper to discuss the difficulties of fruit growing, nor have I any disposition to ignore them. Mice and countless hordes of insect pests are ready to kill our trees and destroy our fruit. Diseases of fruit are apparently increasing in number and severity. But the answer to all this is, that the same skill and industry that makes a man or woman successful in other vocations will win eminent success in fruit culture. Further than this it may be said that fruit culture is free from many of the annoyances of most other pursuits, for active life in the open air, inhaling the sweet odor of flowers and eating luscious fruits, is always rich in the way of health, happiness and prosperity. It may be added that there is no place where childhood is happier than among fruits and flowers, and if there were more of both on our farms there would be less desire on the part of boys and girls to leave them for the weary hum-drum of factory life, or the unhealthy air and crowded homes of city life.

AN INVESTMENT PLAN OUTLINED.

But few orchards are held as investments in Maine outside of the farmers who carry them on. And I am not aware of any organized efforts to produce fruit for market. Some of our most conservative orchardists say that capital is not willing to wait ten or fifteen years for dividends, while an orchard is growing and getting into bearing. We know of some investments that have waited longer and without dividends, but there are none in which the property involved is increased in value as an orchard does. Ten dollars to \$50 an acre will purchase desirable land, which at the end of ten years, set in good varieties of fruit, will be worth from \$100 to \$300, and at the end of fifteen years will yield a large dividend on \$300 to \$1,000 an

acre. This increasing value of the orchard, year by year, forms an important factor in the problem. But I am confident there is no need of waiting so long for profits. Our nearness to good markets and the promptness with which small fruits may be laid down in good markets at a time when they are sure to sell at paying prices, make it possible now to combine the raising of all the fruits that flourish in this climate. So that while the orchard is growing, other fruits will be paying a profit from the same land. My correspondents in various parts of the State on this subject state positively that their orchards are paying them a net profit from 15 to 75 per cent. Not a single grower places the profit less than 15 per cent and the average is nearer 50 per cent. Certainly an investment of this nature ought to meet with favor at the hands of conservative capitalists, more especially when it is considered that the orchard may reasonably be expected, with good care, to bear for years to come, and to steadily increase in value until the trees are fully grown.

In the South and West speculators have organized large fruit companies, purchased land, planted trees and vines, sold capital stock, paid small or no dividends, but promise great things in the future. Now, suppose we should organize a veritable Maine Fruit Company with a capital stock of \$100,000 to be acquired by the sale of stock as needed. At favorable points where there are good local markets for small fruits, purchase good fruit land or land already set to trees, in lots of 100 acres or more. Put some of our most successful fruit growers in charge of the enterprise, and let them develop the industry by planting trees and small fruits, erecting suitable buildings when needed, and purchasing tools and appliances. Let them combine the growing of all kinds of fruit, using the same land, and as soon as the apple trees need all the land let the small fruits be abandoned or cultivated elsewhere. The second year the small fruits will begin to respond in crops, and from that time on there will be a steady increase until the apple trees monopolize the land and are in full bearing. Under the same management there might be a half dozen such fruit farms in Maine and perhaps more. I have not the slightest doubt such an enterprise well managed would yield satisfactory returns. Millions of dollars are being invested in securities of doubtful value and sent out of the State to enrich land and stock speculators. The Boston Orange Growers' Company is organized with a capital stock of

\$110,000. Their object is to engage in orange culture in Florida. A Boston trust company with a paid-up capital of \$1,000,000 endorses each stock certificate and guarantees the interest for six years at six per cent. In his last annual report the bank examiner says there has been an increase of deposits in our savings banks the past year amounting to \$4,000,000. An examination of the list of securities held by these institutions shows that from twenty-five per cent to seventy-five per cent of the deposits or funds of each bank are invested in securities of various kinds beyond our own borders. Would it be possible to divert some of these funds into a Maine fruit growing industry? And is there a trust company in Maine that would be willing to endorse a Maine fruit company's certificate? Without capital such an enterprise cannot be built up, but to my mind the opportunities are excellent for a good and profitable investment in a productive industry, based on a real estate foundation, that can not be stolen away by thieves or consumed by the flames.

FRUIT RAISING IN AROOSTOOK.

By HON. JAMES NUTTING, Perham.

The first settlers on the Aroostook river seem to have tried no experiments at fruit raising, but some thirty years ago a few apple seeds were planted on some of the upland farms, but with no results that gave encouragement, as the trees which lived bore no fruit of value. Ten years later the tree peddler made his rounds, and has since made his yearly visits with new and improved varieties, each better than anything yet shown, and perfectly hardy if his story can be believed. Of the various kinds first introduced, the Duchess of Oldenburg (or New Brunswicker), Alexander and Fameuse, are still planted, and the first named is a success in every way on lands that are adapted to the raising of any kinds of apples, but the others are not a success, except in a few cases. Some eight years ago the Wealthy was added to the list of perfectly hardy trees, and also the Tetofsky and Montreal Peach apple, and later on the Yellow Transparent.

Several years ago, Mr. J. W. Dudley of Castle Hill Plantation, raised from the seed of the Duchess a tree which has been named Dudley's Winter, which for hardiness, early bearing and size, equals

the Duchess, and is a good keeper till late winter or spring. So that we now have the following list: Early fall, the Yellow Transparent; then the Duchess and Tetofsky, and Peach, which will keep till early winter; then the Wealthy from January till spring, and later the Dudley for late winter.

My own experience is as follows: In 1877 I planted out an orchard of one hundred trees, raised at Woodstock, N. B., seventy-three of which were Duchess, of which seventy were in bearing last season, giving an average of a barrel apiece. These trees were planted twelve feet apart, and are now beginning to crowd badly, but have not failed to yield abundantly each year. The other kinds, Alexander and Fameuse, and some other sorts, are not doing as well, but are doing something. In 1885, I set out one hundred Wealthys, which have lived well and are bearing abundantly. I have since planted out some five hundred trees of the same variety, which are coming into bearing and promise well. The following kinds I have tried and consider worthless: Peabody, Greening, Red Astrachan, Pewaukee, McIntosh Red, Haas, Gideon, Mann, Early Russian, Talman Sweet, and several others that are recommended as hardy. I am experimenting with the Red Betinheimer, Scott's Winter, Bloom, and several other varieties which appear hardy, but have not yet commenced bearing. No sweet apple that has yet been proven as good, is on my list, but some of indifferent quality (seedlings) have been set out. A good keeping sweet apple is about all that is now very desirable, and I hope to yet find it in the seedlings being raised in this section. For a crab apple the Hyslop for canning, and the Lady Elgin and Lancaster for dessert, are all that have proven a success. Plum raising is receiving a great deal of attention at present in the Aroostook Valley, with every sign of success. The Moore's Arctic, which originated at Ashland, on the Aroostook river, being the favorite, but the tree requires laying down in the fall to do well. This is not an expensive job, and the tree is a great bearer. Of the small fruits none but the strawberry is successfully cultivated, and if the projected railroad from Bangor to the Aroostook is built, I think a profitable business could be done raising strawberries for the late Boston market.

As to a market for apples, the fact that the valley of the Aroostook is as far north as there is any attempt at orcharding, and that there are 20,000 people in the St. John Valley to be supplied, is answer enough.

Up to the present time there has not been much trouble with insect pests, except the green aphid, which damages the scions the first season to considerable extent. No borers have yet been discovered, and the fruit has been remarkably free from worms. Some kinds, as the Fameuse and McIntosh Red, scab badly, but no others that I have tried, and these, perhaps, might be helped by the Bordeaux mixture.

I think that within ten years Aroostook county will not only raise its own apples, but have a surplus for export, if nothing of a serious nature should befall its orchards, as the southern part of the county already raises more than enough for its home market.

ORCHARDING IN FRANKLIN COUNTY.

By CHARLES E. WHEELER, Chesterville.

I have unbounded confidence in the development of my own county of Franklin, which stretches from the well-known and wealthy agricultural region of the middle Kennebec to the far away frontier of our domain, and whose primeval forests are just now being pierced by the iron rail, and upon its iron track will be borne for decades to come the untold values of these solitudes to supply the great markets of the country. Aye, more, I have a strong and abiding affection for my native town, even though within her limits there may be a few unsightly and sterile openings, yet its extensive plains which have grown the lofty pine to be exchanged for many thousands of dollars for the benefit of its owners, together with the excellent ridges of cultivated soil that have yielded its increase to succeeding generations, makes it a pleasant land in which to dwell. And I hail with unfeigned pleasure each and every fellow worker who has a like confidence in the merits of his respective locality, and will join hands with him in the endeavor to add something to the great whole which will redound to the welfare of our broad and magnificent commonwealth.

In the early settlement of that portion of our State, the pioneers considered it an important duty, after making a clearing sufficiently large to enclose their rude dwellings, to devote the next area to the growth of an orchard. The idea of improved fruit had not yet entered the mind, and as the tree took on a rapid and even growth

in the virgin soil, the time required to bring it into bearing was of short duration compared with the present development, and the expectations of the owner were for *quantity* rather than *quality* in the product, for there would invariably be a sufficient number of trees among the many that would give a pleasing variety of the tart and common sweet, and a supply to meet the demands and needs of a rapidly increasing family, and which would be utilized by the frugal housewife in such ways as were common to that early period.

The next generation, however, became imbued with a spirit of improvement, and the orchard received its full share of attention, a careful scrutiny being given to each tree, and all having evidence of a healthy growth were grafted to those kinds which were then considered the best, and resulting after a few years in a most wonderful supply of choice and valuable fruit, which found a market in the large towns and cities of New England.

A few leading spirits, however, after a careful study of the situation, boldly ventured forth into a new line of fruit-raising, and the inspiration seemed to be infused into the hearts of all the people, for upon many a hillside and fertile ridge, upon level stretches of extended field which had received careful cultivation for a century or more, and within the narrow limits of village enclosures, there sprang up as if by magic an almost countless number of trees that are being as tenderly watched and nurtured as a provident farmer would bestow upon a field of corn.

And go in whichever direction you will the eye now beholds the thrifty young orchard, which in its season, is bending beneath its load of well-formed and luscious appearing fruit, which has not only gratified the soul of the patient and methodical grower as he has daily watched nature's developments, but will be the means of inflating his pocketbook to an extent unknown since the days when beef brought living prices, and wool and other staples gave to the producer those satisfactory returns so necessary to his financial success. And a pardonable pride may be granted me when I refer to the acknowledged fact that in no other section can the standard apple be brought to that degree of perfection as is found in this portion of our State. Oh, the crispy juiciness and delicious flavor found in the red-cheeked and perfectly formed Baldwin! How the mouth waters as the eye takes in the proportions of its fellow of less ruddy hue, the Northern Spy! And the richness and

beauty of the Russet matured in its color of gold, where can its equal be found?

But a query may arise in regard to the permanence of this branch of industry, and the probable condition of the market whence this product must tend. The future is wisely hidden from our view, yet the question of supply and demand regulates itself, and I hazard the opinion that fruit grown in the State of Maine will, for an unlimited period of time, find a ready market and bring prices so remunerative that no grower will ever regret the time and capital invested. Men of deep foresight and well-balanced judgment look upon this enterprise now fully inaugurated and so successfully placed upon a broad basis, as only the beginning of that important period when Maine will stand as notably among her sister states as the producer of this delicious and valuable product, as does now California with its great variableness of climate, which sends forth in great abundance the yields of her vineyards and ranches, even to the supply of the large cities of our land, and extending to the farthest reaches of the continent. Then why delay? In nearly every town and neighborhood there are yet unoccupied farms and lots that may be obtained at mere nominal prices, and it only remains for young men, who, like myself, have only brains and muscle to aid in working out a destiny, to lay hold of such opportunities with a courage that knows no abating, coupled with a knowledge that follows experience and close observation, so that in the near future the waste places and abandoned farms will be transformed into a fruitful heritage. I am encouraged in this idea by the fact that in my own county there are numerous instances where changes have been made in the right direction, and not only has there been put a check upon the drifting away to manufacturing centres, but former residents have returned to their first love and have entered with renewed zeal into the laudable work of renovating the old home.

I might refer to many cases where a personal application has been made of the methods herein hinted at, and where a systematic and thorough course has been pursued, the result has no doubtful significance. And in every town in the county there may be found earnest, resolute workers whose end and aim is to carry forward the principles embodied in a just and equitable transaction in all that pertains to the growing of fruit, to a profitable solution. And in this connection I cannot forbear to mention one whose entire

course of procedure has been tending in this direction. Phineas Whittier, so well known and so highly successful, whose extensive grounds are hidden from my own home only by a thin veil of forest growth now fast receding, is a living example of what man can do. With such a large area wholly devoted to the raising of fruit, with thrifty, bearing trees counting up into the thousands, and a like number rapidly coming to maturity, with annual product of fruit already exceeding that of any other orchard in the county or State even; with a net income of four or five thousand dollars, and the summit of his ambition not yet reached!

PLUM CULTURE.

By ELLIAH LOW. Bangor.

It certainly would afford me much pleasure, in complying with the request of your secretary, to add to the interest of your visit by writing a short article upon Plum Culture. Whatever I may say, however, must be the result of personal experience and observation, and while I most cheerfully join in the cordial welcome extended to you, winter has put its cold seal upon every vestige of horticultural life; and did I not know of your benevolent feelings toward us, I should adopt the severe rebuke of Joseph to his brethren, "Ye are spies; to see the nakedness of the land are ye come." But were we in the fruitful season of the year, I cou'd not promise that you would find repeated our former horticultural success, as achieved under the skill and effort of such men as James McLaughlin, Henry Little, John S. Sayward, Albert Noyes, Albert Emerson, Dr. Weston, S. S. Low, John E. Godfry, and others, who have left us, but who brought the Penobscot valley in sharp rivalry with the Hudson, for the production of this most valuable and beautiful fruit, the plum. These pioneers of horticulture were men of means and leisure, two important factors in fruit raising, and could produce from their graperies and gardens an exhibition that could not be beat, certainly has not, in any I have seen.

A series of misfortunes have served to depress and render more difficult success in our favorite pursuit of fruit culture. The men who have succeeded those pioneers are not, as a rule, men of leisure and means, but find themselves too much engrossed in their business

to devote the time necessary to success in their favorite pursuit, and to confront the changed condition of things. Some years ago the scourge of "black knot" almost blotted out of existence the plum tree. It seemed to commence in the western part of the State, and in a majority of cases so covered the trees that they were abandoned as hopeless, and cut down. When it arrived here the question presented was, shall we fight or surrender! A few of us accepted the challenge and are still fighting. My rule is a sharp knife, and courage to use it; and never go under an infested tree a second time, but cut it out and burn it at once.

Professor Maynard, last week in a lecture before the Massachusetts Horticultural Society, adopted the "fungus" theory, and says, "kerosene will kill it;" and recommends that it be mixed with some dry substance in form of paste, to protect the healthy wood.

For the curculio, I gather up the bitten fruit as soon as it falls, and consign it to the cook stove. I have not yet found any variety not affected by these twin enemies.

If Professor Maynard has really solved this mystery of the cause and cure of the black knot, he has rendered a valuable service to horticulture.

Among the causes that have tended to depress plum culture in this State, but of which I would not complain, is the time fixed upon for holding our fairs or fruit exhibits. At the time fixed our plums are green, and no pomologist wants to exhibit green fruit.

The facilities offered by railroad communication supply our local fruit dealers with beautiful, tempting, California fruit, which is as tasteless and insipid as it is beautiful. Immense quantities of all kinds of fruit are shipped from more southern climates, but it is brought to us in an unripe condition, consequently it has not the fine flavor of gardens here; neither is our cold climate adapted to their cultivation. Even pears cannot so successfully be raised here as in Massachusetts, yet my little plum garden has taken the first premium at their State Pomological Exhibition, for plums.

The few practical suggestions I would make as the result of my experience are these: first, soil. The natural soil of the plum is clay. I have never known success to follow on a sand or gravel soil. My own garden was once an old brick yard.

Varieties—Select varieties that have succeeded best in your own vicinity. The traveling agents, with their beautifully painted and glowing description of their fruit, are very apt to mislead the inex-

perienced. Mr. Downing describes about three hundred varieties, from which we can select, if we know the conditions of success required. At one time I had thirty-two varieties, but I have learned to multiply the best and drop the poorest. Those best adapted to this locality are the Washington, McLaughlin, Bradshaw, Green Gage, Lawrence's Favorite, Reine Claude, Smith's Orleans, Penobscot, Columbia, Victoria, Moore's Arctic, Imperial Gage and Lombard.

Fertilizers—I have never used stable manure, but find bone meal and hard wood ashes (and in spring and fall throw broadcast about a pint or coarse salt), the best treatment for plum trees.

DISCUSSION.

Ques. You place the Lombard the last on the list. What do you think of that?

Mr. Low. It is the most productive plum.

Ques. Have you tried the Quackenbos?

Ans. Not to get fruit. If a tree don't respond after the care I give it, I wipe it out of existence. I have almost envied you, in the country, with plenty of land. Here we have but little land;—a man spoke about putting berries four feet apart;—why we should get upon our neighbors. I have a farm out here; when I bought it I used to get thirty-two dollars a ton for my hay; now, I cannot get but six dollars for it.

Ques. How about Moore's Arctic?

Ans. It is a very productive, but not a rich plum. They told me it would be free from black knot,—I have never found any that was *not* recommended,—but I notice that the black knot puts in an appearance. I consider the Washington and McLaughlin two of the richest plums. The Bradshaw is a good, large, purple plum; I think it is a good one.

Ques. How long is the average life of the plum tree?

Ans. I think I have trees in my garden that are over twenty years old. Some years they get overloaded, when a man gets too busy to think to thin out one-half of the fruit; and that requires some courage. I gave my neighbors an invitation to help themselves, and the next year I didn't get any. The trees want to be fed as well as the horse and cattle; you must put back what you take away. This lesson people have to learn.

I think there is a difference in the length of life of the plum tree. I don't think they are so very short lived. I have a McLaughlin

in bearing that is said to be twenty years old. They show, something like myself, the infirmity of age. A gentleman in Brewer asked me what ailed his fruit trees. I said, "You have starved them to death; you don't feed them." He says "The idea of *feeding* a tree!" I said, "If you prefer to have them bear leaves instead of fruit, you can." Some think, if you stick a tree in the ground it will do, and leave it to live or die.

Ques. We have a clay soil and underdrain as far as we can. We bought some plum trees but they never have fruit?

Ans. In that case, I should try ashes and bone meal as a fertilizer. When I fix it in large quantities I take a barrel of bone meal and four barrels hard wood ashes and fill a hogshead;—a layer of ashes and a layer of bone meal, an inch of each;—then fill the hogshead with water and let it work through. After it has stood ten days I shovel it out and mix with dry muck. This mixture you can throw around your trees.

STRAWBERRY AND SMALL FRUIT CULTURE.

By S. H. DAWES, Harrison.

My text to-day is "Strawberry and Small Fruit Culture." I am not going to preach. I have not been installed for that purpose. I only have a license from our honorable Secretary to give you a little of my experience and observation since I have been in the business. I do not claim to be any authority whatever in pomological matters, and can only tell you my mode of cultivation. I shall call your attention mostly to the strawberry, for it is the king among small fruits. Beecher said that "God could make a better berry than the strawberry, but He never did." I don't think He ever will till we learn how to cultivate and handle that noble fruit better than we do now.

Ten years ago I commenced in a small way to raise small fruits, and after fooling round three or four years in the garden, orchard and beside the fence, just long enough to find out that I did not know anything about the business, I thought I could see that there was money in it if rightly managed. I did what I would recommend every one to do. I selected the best acre of land I had that was adapted

to the purpose. In selecting and preparing an acre for strawberries, it is impossible to give any definite rule that will apply in all cases, for so much depends on the condition of the soil and the quality of the fertilizer, that a man will have to use some judgment of his own as in everything else. But a moist soil is preferable, and there is no danger of getting it too rich. The acre I selected was our common gravelly, rocky upland in grass and all worn out, naturally very wet, so that it had to be thoroughly underdrained. It was then broken up one foot deep, the rocks carted off, a light coat of dressing spread on, and planted to potatoes the first season. As soon as the potatoes were dug I cross plowed it one foot deep, carted off the rocks and harrowed it over three or four times. Then on one-half of this acre I spread a heavy coat of barnyard dressing, and plowed it in eight inches deep the same fall just before the ground froze. The next spring I harrowed it over three times, plowed it again, then spread on another heavy coat of fine, well decomposed barnyard dressing, and harrowed it over five or six times, till it was as smooth as the harrow could make it and the dressing was thoroughly incorporated with the soil. I then spread on forty bushels of wood ashes, raked the surface all over with the garden rake and wheeled off all the small rocks and other debris. I also spread a light coat of dressing on the other half of the acre and planted it to beans. It is no small job to prepare an acre of our rocky soil suitable for planting strawberries, and one reason that so many fail is because they don't half do it. I have found that four things are essential to success—pluck, gumption, lots of dressing and a love for the business. And if a man is greatly deficient in either he will not succeed. There is no branch of agriculture that has so many obstacles to overcome or requires better judgment than small fruits, and none that give so good results when properly managed.

We have now our ground all raked off ready to set the plants, and how shall we set them? That depends on the varieties we intend to set. If you are going to set the old Wilson, and run them two years, I would have the rows three and one-half feet apart and the plants one foot apart in the rows. But if you prefer to set the Crescent Seedling, which I certainly should, and only run them one year, I should have the rows four feet apart and the plants one foot apart in the rows. As soon as you have decided what variety you will plant, drive your stakes accordingly and put on the

lines, for I should always set by a line (I abhor crooked rows) and in setting the half acre you want as many as four lines set at once, so that four men can work at the same time. You will find the job will last as long as you wish it to with that number of men to help set, and one to dig and wheel them along. Now take your trowel in hand, get down on your knees, and begin to set the plants, and you will find yourself in a position to get a practical knowledge of the business. I have been there and know something about it. By the time you have set three rows ten rods long, if you don't feel some as an old fellow over in the town of Sweden did, who tried to live a Christian life, your experience will be different from mine. They had a revival in town several years ago, and this old fellow got wonderfully revived. He was naturally a rough sort of a man, and his language was not of the most refined nature. One of his most common expressions was "by thunder," and in his own neighborhood he usually went by that name. He was very active at first and regular to attend and take part in all their meetings. But after a while his Christian duties began to look irksome, as is too frequently the case, and his old habits began to get the better of him. At one of their meetings in which he participated as usual, after relating his troubles and trials, he said, "Brethren, I tell you when you come to live a right down good, honest Christian life, by thunder, 'tis a grunter," and down he sat. By the time you have set three rows ten rods long, look ahead and see that you have four more to set, and the cramp gets you in both legs, you will think it is a grunter. But if you stick to it till you get them all set, I have no doubt but that you will succeed in the business. After you have set your main bed, be sure and set a small piece for plants to set the other half of your acre the next season. I always set a piece every year for plants, and then I get good one-year-old plants without breaking into my main bed, and usually have some to sell my neighbors. After the plants have been set about one week I give them their first hoeing with the garden rake, and have my men go over the piece with shears and cut out every fruit stem, not allowing one of them to bear the first season. Also cut off all the first runners that start, so that it will make the plants vigorous and stocky. After that I let them have their own way and run to their heart's content.

After the first hoeing with the garden rake, I keep up the cultivation with my horse and cultivator, and hoe them with small hoes

made expressly for the business. The cultivator that I use is one of my own invention, and is nothing but a small harrow made with steel teeth, with a cutter on behind. It leaves the ground as perfectly smooth as you could leave it with a garden rake, and it cuts up every weed. You don't want to use one of our common cultivators, such as farmers use in cultivating field crops. They leave the ground too rough, and knock the dirt on to the plants. I cultivate and hoe them every other week all through the season, till the frost comes, and by attending to it regularly it is but a slight task. But if you once let the weeds get the start, the game is up. They drive more people out of the business than all other causes combined, and too much importance cannot be attached to the necessity of keeping up the cultivation till late in the season, so that there will not be a weed left, however small, ready to start in the spring. If they are kept perfectly clean, as they should be, all through the season, they will need but very little attention the next year, except to pick the fruit. I know of no business but will bear neglect better than strawberry growing.

After or just before the ground freezes, I cart out and spread over the piece about ten cart loads of decomposed strawy horse dressing. With me this is almost the secret of the whole business, and I should not know how to grow strawberries without doing it, for it not only affords the plants a good winter protection, but it gives them a vigorous start in the spring, makes splendid, large berries, and keeps them out of the dirt. Just before winter sets in, or early the next spring, as soon as the dressing thaws, you want to go round with a hoe, pound up all the lumps, and spread them round on the vacant spots, so that the whole surface will be covered evenly, and the rains will thoroughly soak and leach the dressing into the soil. The next spring I take the other half acre of the ground that was planted to beans, and treat in the same manner.

But why not set the whole piece the first season? You can, if you choose, but with my method of culture it does not come right, for I keep my strawberries on the same ground every year. I plow up one-half and set one-half of the acre every season, and that gives me one-half acre in bearing every year. I can get more berries with less labor and expense in this manner than in any other. If I were obliged to prepare a new bed every second or third year, I should be tempted to go out of the business. It does not cost half as much to dress and run an acre after it has once been pre-

pared, as it would to change round every second or third year, especially on rocky soil.

I am aware that this theory is in direct conflict with some of our best authorities and most experienced growers. But I have run them seven years on the same ground, and my crop the past season was the best I ever raised under the circumstances, for the ice laid in one solid sheet over the whole bed last winter, and just scorched the life out of the best bearing plants, so that in the early part of the season I thought I should not get any, but I marketed fifty bushels of fine fruit, besides what was used for home consumption. Mr Sebastian Smith, an old grower in Oxford, who has been in the business over twenty years, tells me that he has raised them sixteen years on the same ground without their showing any signs of deterioration. I have no doubt but that if the soil is properly fed with mineral and decayed vegetable manures, such as salt, ashes and leaf mould, they can be successfully raised on the same ground for an indefinite length of time.

In regard to varieties, I have experimented with several kinds, and have discarded them all except the Crescent Seedling, for a field crop. There is double the money in that for me that there is in any other I have ever tested. It is a more rampant grower, and throws out more runners than any other variety, and sets all the plants needed for a full crop the first season.

Now comes the debatable question of fertilization, which I shall not try to settle, for I want to leave something for the experiment station to do. I have tried to inform myself on this question, have read all the papers I could get on both sides, and can get no nearer the facts, or tell any more than you can how to exterminate the white grub, or when is the best time to trim apple trees; but I have about come to the conclusion that I can raise more strawberries from a peck of manure than I can from a bushel of literature. This I do know, I have raised them at the rate of one hundred and fifty to two hundred bushels per acre without any fertilizer near them, but how many more I should have had if every third row had been set with the Captain Jack, or any other staminate sort, I cannot tell. But I have observed that there is some human nature in plants as well as people. They delight in having their own way, and need a great deal of training and pruning to keep them where they should be, and it would seem perfectly natural that if every third row was set with some staminate sort that they would be more prolific.

There is one thing more in connection with my mode of cultivation that I consider quite important. As soon as we get through the picking season, we find the ground covered with a thick mat of vines that we want to get rid of, and how shall we do it? "Plow them up," says one. I should like to see you do it. If you had a good crop of berries your ground is a solid mat of vines and runners, and I should as soon think of trying to plow a side of sole leather as to plow them with one of our common plows. But it is very important to have it done at once after the fruit is picked, and the way I do is to run them over with the mowing machine, and then rake them up with my spring tooth horse rake, cart them off and put them around my apple trees. They make an excellent mulch, and it pays to do it, and leaves the ground so that you can plow it by having one man follow and clear the plow. Now the importance of having this done immediately after the crop is harvested is two fold. You prevent the weeds from going to seed, and during the hot weather in the latter part of summer, all the remaining vines and runners that were plowed under become thoroughly decomposed, and you get entirely rid of them. I also sow on about two barrels of refuse salt every other season, just before plowing. I don't think it amounts to much as a fertilizer, but it makes the plants healthy, and is obnoxious to insects. The first time I plow it I go round the piece, and when I plow it again, as I always do just before the ground freezes, I plow just the reverse, and that leaves the ground level and upsets the winter quarters of the grubs. I now cart on about ten loads of barnyard dressing, spread it evenly on the surface, harrow it in, and the ground is all ready to set your plants the next spring, except cultivating and harrowing.

The worst obstacles I have had to contend with have been the weeds, the winter killing caused by the ice, and that detestable pest, the white grub. I wonder if they infest the grounds around the State College? If they do not, I would like to send them a few samples to experiment with. They are a more conspicuous target to shoot at than the codling moth or the currant worm, and it does seem as though they ought to be able to hit them, even if they do fail to extirpate the deadly microbe and trypetæ. I can handle the weeds if I take them in season, prevent the winter killing in a measure by a suitable winter protection, but the white grub is more than a match for me, and I will turn him over to the experimental station.

The results I will give you in round numbers in a general way, without going into the details. I have never succeeded in getting what I consider a full crop, in consequence of my experimenting with different varieties, the depredations of the white grub, and the winter killing, caused by the ice. But my crop has never been less than forty-five nor more than seventy-five bushels each season, and the gross receipts have run all the way from one hundred and ninety-two dollars up to three hundred and four. The whole expense, including fertilizer, cultivation and picking will not exceed one hundred dollars per year, leaving a net profit of from ninety-two dollars up to two hundred and four each season, after getting good pay for all my labor, cost of fertilizer, picking, etc.

I also cultivate the other varieties of small fruits, blackberries, raspberries, currants, gooseberries, etc., and beside these, the annual varieties that the tree peddler comes around with every season, that look so beautiful on paper. There is lots of enjoyment in this world in the anticipation of things that we never realize, and I know of no better way to get a share of it than to invest a small sum annually in this direction. But I am not going to weary your patience with the details of their cultivation and treatment, as my method does not differ essentially from those of our best authorities, which you can all get and study at your leisure. Their cultivation is more simple, and so far, with me, they have been almost entirely free from insects and other enemies, and the results have been more satisfactory than any other fruit I have ever raised. The worst enemies that I have to contend with are the birds. The robins and cherry birds just swarm on my bushes. I wish this society would petition the legislature to so amend the law for the protection of birds that it would give the fruit grower the right to protect his own garden and fruit trees, instead of our being taxed to pay a bounty for shooting crows, a bird that does more good than harm.

I raised and marketed, the past season, from seventeen rows of the Snyder blackberries, ten rods long, forty-four bushels, which netted two hundred and three dollars; and from ten rows of the Cuthbert raspberries, twenty-four bushels, which netted one hundred and seventeen dollars. You will observe from this that there was not much difference, either in the yield or the receipts. But as our markets usually run, I think there is the most money in the Cuthbert raspberry.

From what I have already said upon this subject, some of you may think that the cultivation of small fruits is very intricate and laborious. True, there are many things to learn, and I don't deny but there is lots of labor to be performed ; but it is a labor in which my soul delights. There is nothing so difficult or laborious connected with the business but that any one who has any taste at all can easily learn. I can cultivate an acre of strawberries, after it has once been prepared, with as little labor and expense as I can an acre of corn, except the picking, and it does not cost as much to run an acre of blackberries and raspberries as it does an acre of corn, after the soil has been prepared and the bushes set. I believe there is no place in the world where they can raise more nice fruits than we can in the State of Maine, or where they can make it more profitable. We have thousands of acres on our hillsides and valleys that are far more desirable, and can be made to pay a better profit than the orange groves of Florida. There is not the slightest reason why we should not excel as a fruit producing State, as well as in producing the best statesmen, the most beautiful ladies and the fastest horses. If our young men would take the same interest, and work as hard to produce fine fruits as they do to play base ball, our success would be assured. But the great drawback in all our agricultural pursuits is the labor connected with them, and its unpopularity, especially with our young people. This labor question is what the world has to contend with in everything, and small fruits are no exception.

If we go back into history as far as we can get, we read that after God had created man, He also made a beautiful garden, and put him into it to dress and to keep it. He did not put him there to live and revel in luxury and ease. He wanted him to labor, dress the garden, and take care of it. But he was so lazy he would not do it, and God had to drive him out. God was not to blame, and I don't think Adam's wife was any more to blame than her husband. But God drove them both out together. (He did not believe in divorce) ; but he wanted them to go where they would be obliged to get an honest living by the sweat of their brows. There is no doubt but what it was the very best thing that could possibly have been done for them. But they did not believe it. Labor was not popular then, and it is not to-day, especially in connection with agriculture. And I see no way to solve this question but to accept the situation in good faith, and teach our children that it is a bless-

ing from God, and not have them try in every way to shirk its responsibilities. All history teaches us that the industrious workers in all nations, ages, and among all people, are the ones that have prospered and conquered; while the indolent and lazy are constantly being driven out.

There is another thing I will mention in connection with small fruits that I find to be a great convenience and source of pleasure and enjoyment. I have a commodious tent that I erect on a grassy plot near to my berry grounds, where I do all the sorting, crating, and getting the fruit ready for the market. I have a large table on which I can set one hundred boxes, and when it is loaded with ripe, luscious fruit, as I have seen it many times the past season, it is a sight worth seeing. And besides the convenience of having it in close proximity to my fruit ground, where I can do all the work connected with the business, it makes a splendid place to spend a leisure hour now and then, read the papers, etc., and entertain our friends—and we have a host of them, especially in berry time, and are always glad to see them. I have heard a great deal said about the associations connected with the maple sugar camp, but I tell you they are nothing compared with those of the strawberry tent, and I know of none that are (save those of the old school-house), coming as it does at the most beautiful season of the year, when all nature is full of life, and is decked in her royal robes, and the air is filled with sweetest perfumery and the songs of birds. Oh, there is lots of poetry in it, but I can't write poetry, and I will not weary your patience longer.

DISCUSSION.

Ques. How deep do you plow?

Mr. DAWES. I generally plow once a year, one foot deep; I never plow deeper than that.

Ques. How do you prepare your ground for blackberries?

Ans. About the same as for corn. I set the rows eight feet apart for blackberries and seven for raspberries.

Ques. Do you find seven feet far enough for black caps?

Ans. I should prefer to have them eight feet, then run every row twenty feet. I usually cut the tops off.

Ques. What varieties of strawberries have you discarded?

Ans. The old Wilson and Bidwell;—I have experimented with so many different kinds. I have not tested the Haverland or Jewel.

Ques. What variety would you set for the third row?

Ans. The Captain Jack or Wilson.

Ques. Do you find the earlier berries larger than the later ones?

Ans. Yes, the first berries will be largest; I don't know as it is any more so with the Crescents.

Ques. Do you trellis up raspberries?

Ans. I tie them to stakes. Blackberries and raspberries want to be staked. There are some varieties that I don't lay down like the Turner and Brandywine. With blackberries, I dig out one side of the row so they can be canted over, not *bend* them, then shovel dirt enough to hold them down. Lay them all the same way between the rows,—into the center of the row.

Ques. What variety of blackberries do you use?

Ans. Snyder. I would have the bend in the root if I could. In raspberries, I depend upon the Cuthbert for the main crop. I cut them back to about two and one-half feet high. I cut them all off even with shears and they throw up little sprouts that bear just the nicest berries. I get my berries from the laterals from the stalk. I nip them back in summer when they are growing fast, but after that I let them grow and the laterals come up five or six feet high. I let them down the full length and put on dirt to hold them; then in the spring cut them off even. I set them about three feet apart, but they all run together. I let them run together, but not into the rows. I cut blackberries just the same.

Ques. Can you give your strawberries any protection, except the manure?

Ans. I never have, except the straw that was in it. Spruce boughs would do well and in this section it will not be much trouble to get them.

Ques. Do you mulch between the rows?

Ans. Yes, I always cover the whole surface. I never use anything but horse dressing. When the ice is as it was a year ago this winter, I don't think it is quite protection enough.

Ques. Can you check the grub?

Ans. I don't know of anything that will do it. I put on the mulch just before the snow comes.

Ques. You don't recommend putting it on later?

Ans. I should rather do it after the ground freezes. I shouldn't want to put it on earlier than the first of November.

VARIETIES OF STRAWBERRIES AND MARKETING. 573

By WILLIS A. LUCE. South Union.

That there are beauties in agricultural life, the people of the State are beginning to realize. Now one of the chief of these beauties is the strawberry plant. The fact that you can take a plant weighing less than two ounces and raise from that, two quarts of the most delicious fruit or produce thousands of plants from, is wonderful. If there is anything more wonderful in the category of plants, I want to see it. The strawberry is not half appreciated, though it is beginning to be. I saw an article from the pen of J. H. Hale, recently,—you remember he spoke at our Pomological meeting at Damariscotta. He said that twenty years ago in the city of New Bedford, they didn't use a hundred crates a day in the height of the season; and the population of the city has not increased but two thousand, and now, instead of one hundred crates a day they use five hundred. They realize the value of the strawberry more and more. As people become educated they eat less meat and more fruit. He said that during the strawberry season they didn't think of eating meats; that good strawberries and cream, and bread and butter were good enough for him. A man can do a sight of work upon them. In my own county of Knox I should say that fifteen years ago, a hundred crates would supply the whole market for the season. Only a few families used them; but I think I can say now from observation that the present season they have used over a thousand crates. That is due somewhat to the summer travel; but where strawberries were not used at all ten years ago, they are now considered a necessity. They are valuable for the health; they come when we need something to sharpen the appetite. Apples are stale and we hail with delight the coming of the strawberry. The first large strawberry was the Hovey, introduced in 1834. This berry has been improved very much. There are thousands of varieties of strawberries, and out of them all, only a very few are worthy of cultivation. Some seem peculiarly adapted to home use and not for the market, while some are good for both.

In the Maine Farmer of January 8th, there was an article on strawberry culture; "Some facts about strawberries" by Mr. Dow of New Hampshire. I suppose he would think Mr. Dawes and

myself are in the old ruts; he advised us to get out of them; he didn't want us to cultivate the old sorts, and out of 300 varieties he gave ten or twelve worthy of cultivation. In Garden Notes, he mentions but seven varieties. Think of it; only ten or twelve out of 300. Buying the plants by the dozen, they will cost from \$3.50 to \$6 a dozen. I don't think he really advises any one to do that. That work belongs to the Experiment Station, but it is the way he does. There are so many new varieties, that the Experiment Station can find out what varieties are hardy and productive and tell us whether it is a fruit desirable for the market. Reports from the Experiment Station place the Bubach ahead;—I have it side by side with the Crescent and I don't think it will give me the amount of fruit that I get from the old Crescent seedling.

Of the new varieties, the Jessie, Bubach and Eureka are three kinds I am interested in and have on trial. I don't try any variety in field culture until I have thoroughly tested it. The varieties that are promising from the outlook are Mitchell's Early, Gaudy, Warfield and Middlefield. I have a communication from C. E. Hunt of the Geneva Station, N. Y. I asked him the variety that was cultivated to the greatest extent and got the word back the *Crescent*; but in certain localities other varieties have taken its place. I don't know as it will under the highest cultivation and in the hands of experts do as well as some others, but I know of none better than the *Crescent*. All strawberries differ in disposition, as people, and there are plenty of varieties to suit every taste. If you haven't the variety to suit you, you must find one that does. I have a friend in Rockland near the coast; the soil is almost like the flats—heavy soil. He has tried a great many varieties and has discarded them all but the Wilson. That is an old berry, almost the first one. The Wisconsin growers go for the *Crescent*, and they grow very largely what we do in Maine.

A word as to marketing, a very important branch of farming business. If you grow a fine crop you must put it upon the market at the right time and shape. We have one buyer in Knox county, who I think is the best judge of fruit I have ever met, whether foreign or domestic.

I have sold him Roxbury Russets for five dollars a barrel, when he could buy them on the street from three dollars to four dollars, because he knew he could depend upon their being perfect. When

he sees apples in boxes he don't want them, but if handled properly and of first class, he would buy and pay first quality prices.

So with the strawberry crop ; it has to be handled carefully and at once ; you cannot hold it for higher prices, it must go upon the market, and if you have a large crop of berries you want to know where they are going before they come off. They need to be picked carefully, the baskets neat and attractive.

I have seen them put into baskets and crates not fit for swill. If you should put other products in the same baskets, people would not buy them, but they will have strawberries. If you desire a good class of customers, you must put your fruit in clean, attractive cases.

With this prospect before us, let us take courage. I grow strawberries because I love the work. There is a height and depth that we may never reach or understand ; and even this thought lends a fascination. Often as I go out strolling among the flowers, my mind turns to Tennyson's "Song of the Flowers :"

"Flower in the crannied wall
I pluck you out of the crannies,
Hold you here, root and all in my hand.
Little flower ; but if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

THE CARE AND EMBELLISHMENT OF CEMETERIES.

By JOHN G. BARKER, Superintendent of Forest Hill Cemetery, Boston.

But I am to speak to you more particularly on the Care and Embellishment of Cemeteries. Did time permit, I should attempt to give some thoughts relating to the laying out of cemeteries more particularly than is possible in this paper ; for, in the care of any place, much depends on whether or not it is judiciously laid out in the beginning. A proper understanding of this dependence, or in other words a proper regard for the future, is a point every intelligent landscape gardener should study. Only a few miles from here, in a town where, around the houses of many of the residents, good taste prevails to an unusual degree, I could take you to a small cemetery so injudiciously laid out, with so many needless avenues and paths, that in keeping it merely tidy more than double the

amount of labor is required that a place of that size ought to take ; and I am sure I make no misrepresentation when I say one-third of the land is wasted. Thus it happens that in compiling accounts of actual outlay in care and maintenance of grounds, we often remark the great cost of the care of some as compared with that of others, of nearly or exactly the same size ; there being so many circumstances that differ in any two places compared.

Unless in the case of a flat surface, it is impossible to lay out any cemetery to the best advantage without first viewing the grounds. Any location, be it ever so small, should be seen with all its surroundings before a stake is driven ; and before any plan is adopted we should be sure it is what we want. In other words, I should reverse the usual order of work ; I should say the grounds for a cemetery should be laid out first, and the plan made last.

There are those who palm themselves off as landscape gardeners, yet cannot lay out two places differently if their lives depended upon it—when you have seen their plan of one place, you get at a look all they have in them ; and I can assure you I do not say this at hap-hazard. Some men's bump of adaptation, if they ever had any, seems never to have got developed.

It requires something more than a city office, or the accident of an acquaintance with some influential trustee or lot holder, to enable one to lay out a place for the whole future as well as the present, and in a manner that will always be acceptable. And is it not true, that, in some places under such influence as I have indicated, we witness in our visits a piece of mere heterogeneous botch work ; where trees, shrubs, plants, and flowers are huddled in together, without any regard to habit of growth, taste in arrangement, or anything else? And this is called landscape gardening! And when these trees, shrubs, etc., are grown up, who can wonder that even the ordinary man who does his own thinking is dissatisfied? I think it is not difficult to see how it is that some other places look better than such as these.

Of course every cemetery has an entrance of some kind ; and let me say, right here, this is the very place where a diligent care of the grounds should be at once apparent. Our visitors are brought there by no ordinary circumstance of life ; and we should always be careful that their first impression is cheerful and pleasant. I would make it so attractive, and keep it so neat, that the thoughts and emotions of the person would at once be relieved of gloom, and refreshed by the joyful contemplation of a bright and happy scene.

Be sure of this first impression ; but do not stop here—do not expend so much of your energies here that you must neglect the rest of the grounds. Wherever you can plant a rare tree, or a group of nice shrubs, or a bed of flowers, do so ; and do not let the marble and granite monopolize the ground anywhere.

A few weeks ago a friend asked me, “Do you ever go to such a place?” “Yes, I have been there,” was my answer. “Well,” he continued, “I was there a short time ago. The entrance looked nice, and our expectations were all excited ; but really that was all there was to it!” Now just imagine such a feeling—one transient good impression at first, and nothing more. We want a sustained impression ; good at first, and good all the way through.

Most of our larger cemeteries have adopted the plan of setting apart, at the sale of every lot, a portion of the purchase money, which shall constitute a fund for the perpetual care of the same. The advantages of this plan at once commend it to every purchaser ; and it is greatly to be regretted, in the case of many of our cemetery corporations, that they did not have foresight sufficient to add this feature long ago. It will need no extended argument to convince every close observer that a provision for the perpetual care of every lot, combined with the lawn plan of laying out the grounds, makes it much easier to care for them than when they are laid out in the old style, and with liberty to every purchaser to establish his own grade, so that one lot is high and another low. As I am writing I call to mind a cemetery, a portion of which is quite level, and yet on this very part the amount of filling put in is so great that the paths have the appearance of ditches, more than anything else ; and long flights of steps are necessarily provided to very many of the lots to make them accessible ; and the interments cannot be more than a foot or two, if so much, below the grade of the avenues and paths. Imagine this to take care of !

Have not I succeeded in showing why it is that a man can do double and in some cases treble the effective work, where the grounds are laid out on the lawn plan? In the one case there is a bank or terrace to nearly every lot that he works on, and the sickle is in constant use ; in the other, he has little use for anything but his mowing machine and the wooden lawn grass rake. Again, remember that, under our hot suns in July and August, nothing can be more unsightly than a long extent of dried up sun-burnt banks and terraces. Considering all these facts, are we not justified in advo-

eating the landscape lawn plan, both for effectiveness and economy, in the care of our cemeteries?

Practical experience teaches me that an all-important point, in the care of our cemeteries, is a proper division of the work. For years I have laid out our work in sections: assigning two men only to a section. Their duty is to keep all lots trimmed and quite clean, the flower beds free from weeds, and the vases watered; and (when the grass does not grow so fast as to keep them constantly busy) they are also expected to keep the paths and avenues clean, in their respective sections. I hold one of these two men responsible for the work; and, by so doing, if I see a neglected lot at any time, I know just whom to go to about it. He cannot tell me—"I did not do that last." I try to have a general oversight of the work, examining it myself once every day, and twice if other duties do not prevent me. I think it is well the Superintendent should be expected often; and sometimes it is well for him to go when he is not expected. To be still more explicit, I believe the Superintendent should as far as possible know everything that is going on, allow no one to stand between him and his men, and above all, if possible, know all his lot holders. He is the responsible man, and above all others, has need to be completely familiar with all the details of the place; and by this familiarity, together with habitual and systematic planning for his men, he is enabled to use to the very best advantage all the means at his command for the care of the place; and what is true of this department of work is also true of all others.

Having thus, though briefly and imperfectly, considered the care of a cemetery, let us now turn to its embellishment; though one is so much a part of the other that I may not succeed in keeping them distinct. I think we shall all agree that the avenues and paths are very important features. Those at the entrance should always be of a width proportionate to the surroundings; they should be well extended, and the curves easy. I have found that for the principal avenues, aside from those at the entrance, eighteen feet wide is a good standard to adopt; and three feet and six inches for the paths is quite sufficient. The surface should always be rounded enough to throw the water into the gutters. Nothing adds more to the appearance of a place than well kept avenues and paths, and nothing detracts more from it than neglected ones. A job well done is sure of giving good satisfaction; and work of this kind should be of the best.

Wherever it is necessary, and at the same time feasible, to carry off the water, it will be found best to lay a drain pipe in the avenue along its border—a foot deep is enough—with a catch basin at that part where the most water concentrates ; so carrying it to the most accessible point of discharge. This is preferable to paved gutters, especially where good stones cannot be obtained for the work. A nicely paved gutter of selected beach stones, of uniform size, makes a handsome finish sometimes ; but they cannot be obtained everywhere.

As all cemeteries have more or less of paved gutters, it may not be amiss to speak here of their care. It may be thought that these are very expensive to keep clean, but it is not so ; it is very seldom that they have to be weeded by hand. When the grounds have their spring raking up or cleaning, the gutters should be thoroughly swept with a stiff broom. This is generally in the latter part of April ; after that, I always keep three barrels of brine on hand, and—weeds or no weeds—these gutters are watered with it once in two weeks ; and with an occasional sweeping they are always clean. Use it always on a bright sunny day. This is an easy and very satisfactory way of caring for the gutters ; an experience of several years supports my statement. I think this is an important point to attend to in the care of our cemeteries ; for, no matter how thoroughly you may do all the rest, if you neglect this it will detract more from the appearance of the grounds than can be made up by any efforts whatever towards other embellishment.

The edges of the avenues and paths should never be so high as to attract notice ; keep them low, but properly defined ; use the scuffle hoe and fine rake freely when the weeds are scarcely perceptible, and you will be surprised to see what a distance two men can go over in a day.

You will expect to hear something about the lots ; and I remark, first of all, that without good grass you may plant whatever else you please, and yet never have a good looking lot. Let all the ground be well prepared ; do not be disturbed if the compost heap is reduced. Before sowing, give the seed something to feed on. I cannot recommend attention to this work too strongly. I know by sad experience the great drawbacks from the want of thorough preparation. Proprietors whose lots were graded years ago, and who have them cared for by the year, are surprised that theirs do not look as well as many others ; the fact being that, at the time

those lots were graded, the work was usually let out by the individual purchaser to the man who would do it cheapest; while now every lot, in any well conducted cemetery, is thoroughly prepared before it is sold.

I have in my mind an owner of a large well laid out lot, who is willing to pay any reasonable bill for the care of it. On that lot there is not over four inches of good soil. He is willing to top-dress it—but I have not persuasive power enough to get his consent to make thorough work, by taking out the gravel and replacing with good loam and manure, and then seeding down anew. Top dressing is good, but food for the deep roots is better; a dry spell will soon convince a close observer of this fact. By all means let us have good grassing.

As long as time lasts, I suppose marble and granite will be used for decorative, as well as for memorial purposes. We scarcely ever think how little the original intention of the projectors of Mount Auburn was conformed to, during the many years when fences and granite curbing were permitted to surround the lots, giving it more the appearance of a marble and granite yard than anything else; especially when viewed from a distance. It is not until within a few years, comparatively speaking, that the landscape lawn plan has been carried out there. It certainly is a delightful spot; but only imagine how much more charming a place it would be, were the whole of these naturally beautiful grounds brought into accordance with the intentions of its founders.

Happily many of the old unsightly hedges and fences are giving way, each year, to grassy slopes and rare trees and shrubs; so that in this modern style the views of the founders are becoming realized. I make these remarks in friendly criticism and not in a captious spirit.

Not long ago a lady, who owned a small lot, said to me: "I want some shrubs, or plants, or both, on my lot; what do you advise?"—In the centre was set a weeping Kilmarnock willow (which can be easily removed if a monument is erected), and on each front corner a plant of *Yucca aloifolia*; with a spiræa and a hydrangea placed near the back corners, in the space in the rear of the lot. Properly cared for, this simple arrangement will look well for years to come.

I do not advise flower beds on lots, although many wish for them, but I do think a good-sized vase, well filled, and placed in the

centre of the lot (especially where there is no monument), is very desirable.

So far, I have referred more particularly to small lots. Of course larger ones will admit of more extended work ; but still the principles for treating small lots will apply to larger ones. We must remember, of course, to attain all the variety we can in the embellishment introduced ; and yet also that an effect of neatness and simplicity is what we should equally strive to secure ; and that anything like ostentation is entirely out of place.

It is a good thing that tastes and customs change. We all feel how much better it looks to see on a large lot, or indeed on a lot of any size, one handsome monument, with simple markers set at each grave to designate whose it is—than a quantity of head-stones, some of one design and some of another, such as were once common. A superintendent's advice is often sought on this very point. Sometimes the matter is presented in this way : "I have a lot in the old part of the cemetery. I inherited it from my father. I want to improve it and I do not know what to do with it. It looks bad ; still I dislike to disturb what my father did." This I know is an ill-advised sentiment ; and I would take that friend and reason with him, as kindly as I know how, and would show him, by what had been done on other old lots, what his might be and ought to be made. By taking this course, if he is really in earnest, you can usually win him to your views ; but be assured it will take kindness, and not "you must," to gain your end.

I can show you a beautiful vista where once was an assemblage of unsightly hedges and iron fences, with ragged banks and terraces, half dead trees and scraggy shrubs. We now have there a range of well kept lots, with vases and beds of flowers, and choice trees and shrubs ; the whole area is a pleasure to all, and not one of the several proprietors would restore its former condition on any account. It took time, of course, to accomplish this result. But it has been done, and this single example has done more to influence others to make like changes than any amount of argument could possibly have done.

On the larger lots, of a thousand or more square feet, a good way is to form a circle, described about the centre of the lot. This will leave spaces in the back and front corners, which may be planted, if you please, with Cut-Leaved Birch on the back corners, *Deutzia gracilis* in the front, or *Yucca aloifolia*, or anything to suit your

taste, if not of too strong growth; place a tree in the centre, to occupy it until you are ready with your monument. This idea I gain from a plan in my possession, furnished from Spring Grove Cemetery at Cincinnati.

It is a good practice, adopted in many cemeteries, to furnish every owner with a plan of his lot drawn to a scale; and cause all the graves to be correctly defined upon it. A book of duplicates of these plans is kept at the office of the cemetery, one page being devoted to each lot. In this way all mistakes are prevented, even if there is neither monument nor headstone on the lot, as each successive interment is recorded on the proprietor's plan, and also on the book at the office.

While we cannot control all tastes we can influence very many. Some of you will say, tell us how you do it. The first thing is to know your people, and find out what their wants are, and then adapt yourself to them.

WINDOW GARDENING AND HOME DECORATION.

By W. H. ALLEN, Augusta.

"Window gardening" is a term applied to a method of growing plants in boxes placed in the windows, but it may apply to the cultivation of plants grown in pots as well, and as the pot system is the most in use I will confine myself to the treatment of pot grown plants, though the rule will apply in a general way to the window box.

As experience is considered the best teacher, the horticultural profession is no exception, the oldest person can always learn something new, and the more we cultivate plants the more interested we become in the study of their nature.

As plants subsist chiefly upon the soil, it should be the first to be considered. If we want a healthy plant we must feed it from the roots with soil best suited to the growth and development of a strong stock and healthy foliage. The preparation of potting soil is very simple, and the amateur can prepare it as well as the professional florist. Many people send to the greenhouse for potting soil, thinking they will get a superior article composed of several ingredients known only to the profession, when in reality two are all that

is necessary for the growth of nearly all the plants we cultivate—sods, with two or three inches of good loam cut from some old pasture, and well rotted cow or horse dressing. The sods should be cut in the spring and turned grass side down in a heap to decompose. They should be turned and broken a few times during the summer. The dressing is then added, and the whole thoroughly mixed and fined for use, and unless for small pots or seeds it need not be sifted, as in sifting the roots of the sods are left out, and they contain a quantity of fertilizing matter too valuable to lose. The proportion should be about three or four of sods and loam to one of dressing.

Potting plants from the garden for winter window decoration needs not a little good judgment, as this is the time they should receive especial treatment in pruning and shading, in order that they may be healthy when carried to their winter quarters. In pruning or cutting back it should be remembered that plants, as well as shrubs and trees, should be cut back according to the amount they are disturbed when lifted from the ground. The more the earth is removed at this time the more the danger of loss if the plant is not pruned accordingly. The habit of the plant will determine how it is best to prune, whether for a dwarf compact growth, or tree form.

The size of the pot the plant is to be potted in should be in accordance to the size of the plant and quantity of its roots. It is generally better to change once or twice from a four to a five or six inch size, than to pot at once in a size too large, where the earth would soon become sodden, and the plant be likely to stand still until such time as the roots had spread out to take up the extra moisture the earth contained. When potting, one or two inches of charcoal or broken bits of pot should be placed in the bottom for drainage.

One of the most common errors in growing plants in dwelling houses is that of keeping the temperature too high. The greater part of our house plants do not require a temperature higher than from sixty to sixty-five degrees in the day, with ten or fifteen degrees lower at night. To be sure there are plants that require a higher temperature than that. I do not mean to imply that the two classes of plants will not live in the same room at either the high or low temperature, but they certainly will do far better by having the temperature their nature requires. Such plants as geraniums, fuchsias, roses, carnations, callas, azaleas, heliotropes, etc., should be grown in the lower temperature, sixty or sixty-five, while begonias, palms, bouvardias, dracenas, coleus, and plants of the hot house class require the higher degree of seventy to seventy-five.

Watering plants in winter should be done with care, as some plants require more than others. It is more often the case that plants die from over watering than from the lack of water. No set time should be established for applying water, as a few bright days would dry the earth and necessitate watering every day, if exposed to the full rays of the sun, whereas the same number of days in cloudy weather, once in two or three days would be sufficient. Soft wooded plants, such as geraniums, fuchsias, salvias, etc., require more frequent watering than the hard wooded varieties, such as camellias, azaleas, etc. Although the latter would be badly injured if allowed to get dry enough to wilt, much depends on the atmospheric moisture the room contains, in determining the frequency of watering. It is always better to water so as to wet all the earth in the pot at once and refrain from further watering until the soil on top indicates dryness, which by little close attention will soon be determined.

Plants intended for winter blooming may be checked through the summer months by pinching off the buds as soon as they appear, until the first or middle of August; after that they may be allowed to remain, and if care is taken to water thoroughly before removing from the ground, so that the earth will adhere to the roots, potted immediately and placed in the shade for two or three days, they will scarcely show the change, and may then be carried to their winter quarters in safety. Flowers should not be allowed to remain on plants to ripen unless wanted for the seed, as it weakens the plant and it will not blossom so well, as the strength of the plant is fully required and exhausted in the ripening process.

In removing cuttings or slips from plants, due regard should be given to form, but as a general rule cuttings taken from the top where the wood is tender, strike root quicker and make better plants than the ripe hard wood lower down on the stock. Cuttings root readily in clear sand if kept moist and in a warm place, but the sand should never be allowed to get dry. Geraniums and soft wooded plants will generally root in from ten days to two weeks, and should then be potted in not larger than three inch pots, shifting to larger sized as the growth of the plant may indicate, which may be determined by striking the plant out of the pot by turning it over and tapping it gently on the edge. If the roots have filled the soil, grown to the sides of the pot, and begun to turn brown, they show the necessity of more room.

There are but few insects that are very troublesome to plants grown in the house, and the most common among these is the green fly, or *aphis*. While in the greenhouse fumigating with tobacco is resorted to, it would be objectionable to apply it in a dwelling, but it can be steeped in water to the color of strong tea, which would require about one pound of tobacco stems to four or five gallons of water, or in that proportion; it may also be applied in the form of snuff, by dusting the leaves on both sides. It is always better to use it as a preventive, for when once they get a good foothold it takes longer to dislodge them. Either of these methods applied once in two weeks will generally be sufficient.

The "mealy bug" is another troublesome insect. It has a white cotton-like appearance, and infests many of our greenhouse plants. A mixture called Cole's Insect Destroyer put on with an atomizer is a sure cure. The oil of fir will also kill them, but must be diluted so much for tender plants that it is hardly a safe remedy to use. About the easiest, and perhaps the safest way is to brush them off with a fine brush. Brown and white scale insects are often troublesome to the oleanders and some other hard wooded plants, but like the mealy bug, brushing off is the best way to get rid of them.

The red spider is one of the smallest insects we have to deal with, both in the dwelling and greenhouse, but we have a simple and sure remedy for destroying them. As they never appear in a moist atmosphere, it is necessary to shower the plants occasionally, and as they always attack the leaves from the under side, they are not apt to be discovered so readily as other pests, and if left long spin a fine web, and water, unless applied with force, will hardly dislodge them. Their presence can always be detected by the dried porous appearance of the leaves. Therefore if the plants are syringed or dipped in water occasionally they will be of little trouble. These are the principal insects that trouble plants when grown in pots, and while the remedies I have named are what are in general use among the florists, it does not follow that there are no others that may answer fully as well; but any and all remedies should be used, as far as possible, as preventives rather than cures.

There are many plants such as callas, geraniums, and other soft wooded kinds, that grow to foliage with scarcely ever a flower; but it is often the case where the plants do not get the sun only a short time during the day that this occurs. To get the best results from plants that are grown for their flowers, they should be placed as

near the window as convenient, as it is the sun and light that bring out the flowers. It will hasten the flowering by thinning out part of the leaves. Callas with twelve or fifteen leaves may be thinned one-half by cutting off the small, poor leaves, letting the centre and best ones remain. I have known this treatment to throw plants into blooming in less than two weeks.

☛ Bulbs are grown for winter flowers to a greater extent each year, and to supply the demand in large cities millions are grown annually, and as some kinds can be grown in the dwelling as well as the greenhouse, a few words on their treatment may be of interest to those who might want a few of those most interesting flowers for the winter holidays. Chiefly among these are the hyacinths. Two or three bulbs may be put in a six inch pot, using the same earth recommended for the other plants. The bulbs can be pressed down into the soil so as to leave the top uncovered. They should then be watered and put in a cool place. The cellar is perhaps the best, and if it is not too dry one or two waterings will be sufficient until it is time to remove them to the heat, which should not be done until the pots are well filled with roots, which will usually be in from four to six weeks. It is very necessary that bulbs of all kinds should start from the roots before they commence to grow from the crown. The temperature best suited to hyacinths is from seventy to seventy-five degrees, and the nearer to the glass or window the pot is placed the better the flowers will be. Single hyacinths are the most in use for forcing, but the double will do nicely if wanted to remain on the bulb for the room, but are too heavy and large to use for bouquets. Thousands of the *Lilium Harrisi*, or Bermuda Easter lily, are grown for Easter decorations. The treatment is similar in all respects to that of the hyacinth, only that more time is required for the development of the flower, for when the hyacinth will blossom in about two weeks, the Bermuda lily requires from six to eight.

In conclusion, I would say that every encouragement should be given to all who can spare a few moments to cultivate at least a few plants in their homes. They give a cheerfulness that only flowers can produce, and tend to promote that higher happiness that is always a result of a closer communing with Nature. I would also suggest that teachers devote a few moments to the cultivation of plants in and about the school-house for the benefit of the children, (for in my judgment all children should be taught to love and cultivate flowers). They soon learn to appreciate them, and by so

doing induce their parents, who for some reason may have neglected this branch of the child's education, to purchase for them a few seeds or plants for the adornment of their homes, for when the love of flowers is once acquired by the child, the influence is felt by all the family.

“They came in sight of a lovely shore,
Yellow as gold in the morning light;
The sun's own color at noon in wore,
And had faded not at the fall of night;
Clear weather or cloudy—'twas all as one,
The happy hills seemed bathed with the sun;
Its secret the sailors could not understand,
But they called the country Sunshine Land.

“What was the secret? A simple thing—
It will make you smile when once you know—
Touched by the tender finger of spring,
A million blossoms were all aglow;
So many, so many, so small and bright,
They covered the hills with a mantle of light;
And the wild bee hummed, and the glad breezes fanned
Through the honeyed fields of Sunshine Land.

“If over the sea we two were bound,
What port, dear child, would we choose for ours?
We would sail and sail till at last we found
This fairy gold of a million flowers.
Yet, darling, we'd find, if at home we stayed,
Of many and small joys our pleasures are made.
More near than we think—very close at hand,
Lie the golden fields of Sunshine Land.”

HOME GROUNDS; OR, OUR HOMES AND HOW TO IMPROVE THEM.

By JOHN G. BARKER, Jamaica Plains, Mass.

All great social improvements are from the nature of the case made slowly. A love for the good and beautiful cannot be formed in a few weeks or months; it must be the growth of years, and in no case is it more true than in respect to horticulture. Did you ever see a child, whether raised in the city or country, that was not overjoyed at the appearance of the first spring flower of the opening season? Yet as the life of that child advances, in order to be successful through life, these tastes must be developed and strengthened, and there must be opportunities and means for their cultivation, or there can be very little hopes of success. Hence, from an educational point of view, you have provided schools with all the modern appliances, second to none on our continent, and by so doing you show to our citizens and the world that you do not expect our children to grow up scholars without schools or books. We have in Boston a great love for horticulture, and I hope you have in Maine, but because that love and taste for the good and beautiful exist, shall we be content to stop where we are? By no means. Our motto must be progress. Washington said that agriculture is the most healthful, the most useful, and the most noble employment of man, and certainly horticulture is akin to it, for I am sure I do not know where to draw the line between agriculture and horticulture. What a source of pleasure it must be to those who have their little plot of ground to cultivate, and how many hours of pure enjoyment are spent therein, and how great the loss to those who have never had their little plot. At this very season of the year have you not witnessed how many windows there are filled with plants and flowers? Go where you please you find them, and by these means a taste for flowers is formed, and every means should be extended to increase and encourage their cultivation, both as to window gardening and outdoors cultivation, by offering prizes by local societies for the best examples of each, timely advice what to grow, with perhaps an essay on the subject, to be followed by proposing and answering questions. Let me give you an example. In the year 1885 the Massachusetts Horticultural Society offered a prize of twenty dollars for the best

arranged and best kept flower garden. August nineteenth, the Garden Committee, upon invitation of Mrs. Mary C. Goddard, went to Hopedale to visit her garden, and I take great pleasure in giving you a verbatim report of this visit, as the methods employed by this lady are within the reach of many other ladies :

“The ground comprises about twenty-five thousand feet, and is devoted largely to a lawn with flower beds cut in the grass. The most noticeable bed was the one on the right of the walk, near the entrance ; it was twenty-eight feet in length by four and a half feet in width, and planted in three sections with *phlox drummondii*,—*Isabellina* occupying the center, with *coccinea* and *rosea* at the ends, lengthwise in the center of the *phlox drummondii*. The *rosea* were Blue Victoria asters, and similarly in the *coccinea* white asters, and in the *Isabellina* red asters ; a border of *ageratum*, Tom Thumb, surrounded the whole, the stiff, woody growth of the *ageratum* serving to hold the *phlox* upright. By this means all the plants were kept in place without any aid of stakes or twine. The colors of the flowers blended harmoniously, and the whole effect of this arrangement, using but a few varieties judiciously placed, was very pleasing, and fully proved that it does not require a large expenditure of money to have a nice bed of flowers tastefully arranged. Another bed next the wall, sixty feet long and three and a half feet wide, was planted with single *dahlias*, *salvia splendens*, and *zinnias*, with a row of *gaillardia* in front, and *tropæolum spitfire* running over the stone wall. In front of the house a circular bed was arranged with *cannas* in the center, surrounded by a row of *coleus verschalettii*, and outside of that a row of *centaurea gymnocarpa*. On the east side of the house a crescent shaped bed contained three varieties of *coleus*, each color being planted separately. In another bed we noticed *tritoma uvaria* with *canna ehemanni* in the center, bordered with *portulacca* ; in the spring this bed contained pansies. The piazza was covered with neatly trained vines of *tropæolum lobbianum*, *cobea scandens*, and *Thunbergias*.”

Now how is this done? Mrs. Goddard says : “I sow my seeds in April in very gentle heat, and ought to transplant once before putting into the garden, but for lack of room omit to do so except with a few plants of *pyrethrum*. I have the flower beds dug very deep and made quite rich, and then a top dressing of phosphate is dug in around each plant, and the earth is loosened at least once a week, until the plants are so large that it is impossible to do so.”

Considering that this lady has only a few hot-beds and a bay window in which to raise the plants that filled these beds, we think that no one need to despair of having a pleasant and attractive flower garden. Since bedding plants can be obtained at a very low figure, there has been a tendency of late to undervalue annuals; but here we certainly have a very pleasing example of their effective use. We are informed that, aside from the small sum paid for seeds, and ten dollars paid for extra labor, all the work was done by members of the household; and it was a great pleasure to report that this flower garden was the most neatly kept, tastefully arranged, and economically managed of the kind that we had been called upon to visit.

The Maine Pomological Society is a progressive society, made up from progressive people, and carrying on great industries; and will you let the beautiful art of horticulture fall behind, and not keep pace with the people? I hope not; and that you will meet with a hearty, generous co-operation from the people who are always ready to respond to every good word and work, there is little doubt. The embellishment of our homes and the grounds surrounding them is a subject that can never be off the mind of any one that has a home; but we must acknowledge, and regretfully, too, that the tastes of the majority of the people for the embellishment of their homes is not as strong as we wish it was, but it is growing. I know that the supply of more needed wants, and the gratification of more pressing tastes, will take precedence to the planting of trees, and the ornamentation of the grounds is put off to a more convenient season. I would rather plant my trees and fix my grounds as soon as my house is finished, than to furnish the parlor first, and fix the grounds last. What say you as to the value of trees? I think in the past, to a great extent, at least, false opinions have prevailed that trees do not add much to the value of an estate, if we may judge from the ruthless manner in which they have been cut down in many of our cities. Indeed, too little regard is paid to them in the thriving city of Lynn, where I lived for fourteen years. It seemed to be a sort of understood law that if any one wanted a tree down, it was about sure to come; and sure enough, it generally did, and it was not by any means an uncommon thing to see the best of trees in that city mutilated by fastening horses to them. And to facilitate this barbarous treatment, chains were actually driven in them, inviting them to the abuse. These things, with the additional fact that so many houses

were built and left entirely destitute of trees, led me at that time to speak to the people on this same subject.

It seems to me that the influence of this society can not be used to better advantage than to encourage among its members and citizens a live interest in this department of your work. The influence of a few spirited individuals in every town and city would in a few years make a wonderful change, and instead of seeing as we do now only a few trees here and there in some of our streets, (of course there are exceptions) we should see both sides handsomely lined with trees, which would make them attractive to the stranger and pleasanter to ourselves. But how often do we hear people say that it is useless for them to move, while others are perfectly indifferent to any improvement. One of the very best refutations to this do-nothing doctrine is to be found in the city of New Haven, Conn., known as the "City of Elms," which beyond doubt is the best shaded city in Connecticut, and I am not sure but in the New England States, being known all over the country for the grandeur and magnificence of its trees. And this is all due to a single individual, as much as if he had planted every tree himself. What a monument Mr. Hillhouse has erected for himself, and we are glad that it is recorded by Mr. Downing that he lived long enough to see fair and lofty aisles of verdure, where before were only rows of brick and wooden houses; and we doubt not that he enjoyed a purer satisfaction than many great conquerors who have died with the honors of capturing kingdoms and demolishing a hundred cities. Let no individual, therefore, delay planting trees himself and persuading others also to do the same thing.

I have showed you how one man's example inspired the public spirit which fostered the elms that are the pride of the city and the admiration of the stranger. Why not enter upon this work with enthusiasm, and you will soon find that your friends and neighbors are being gradually drawn into your sympathies.

But perhaps some may ask how shall this be done? Let me say, this very meeting is a step in the right direction, and right here let me call your attention to the influence of a local society whose members met at stated times during the winter months and discussed these very subjects. I will give you one instance of the influence of this society. While on a visit to the city of Newton in the autumn of 1874, in riding around with an esteemed friend we came to one of the school-houses, and much to my surprise and greatly to

my gratification I found the grounds in front were tastily and beautifully arranged with beds of flowers and their appearance indicated good care. Upon expressing great pleasure at this beautiful and unexpected sight, my friend said that it all happened through the influence of the Horticultural Society. Now who can tell what happy influence these flowers had on the minds of the children who daily met there in the pursuit of knowledge, and with the youth is the place to commence all reforms and ingraft new ideas. I know some people will do just as their fathers did, and think that well enough; and if the old school-house that stood on the plains without a tree to shade it, or hardly a spear of grass growing anywhere near, was good enough for them, it is for us and our children. Well, I do not, and I have no idea you do.

But for a moment go back to that school garden with me again. I see it, the building painted and clean, the lovely trees clad in the most beautiful foliage, the flowers bright and almost bidding you welcome, the grass neatly cut, the walks clean, and not a weed to be seen. I contrast it with some I knew then and could find now, which in winter were fit only for skating ponds, in the spring mud holes, and in summer weeds and dust had entire possession, and not a tree anywhere near. Now I am sure if you could have witnessed these two school grounds which I have tried to make you imagine that you have, you would all join with me in a grand chorus when I said: "God bless the Newton Horticultural Society." I appeal to you if you have not a duty in this direction. Anyway, do all you can and you will be surprised how much that is. I hope we may see the day in the very near future when all our school-houses can boast of their lovely school gardens and grounds; and not only the schools but why not the grounds around all our public buildings, (and I mean the churches as well) receive such care and attention by judicious planting so as to present an attraction to citizen and stranger alike.

The trees adapted for shade in our streets are few, the American and English elms are favorites, and when protected from the canker worm, which is the only objection, are the best adapted of the elms to this purpose, unless it be the Huntington elm, which is a strong grown European variety, and as I have watched its growth in the Newton cemetery I have been favorably impressed with it; certainly there is no better tree for our broad avenues. Maples, sugar or rock, are of vigorous growth, form more or less pyramidal and ele-

gant, fall color magnificent, hardy, and one of the best of street trees because pyramidal, in every way an excellent ornamental tree, and one much sought for. In my mind they have no superiors, and are clean and handsome. The red and white are also good street trees, of rapid growth, and fine, symmetrical form, and their autumn hues are unequalled. In speaking of maples, a writer in one of our journals says that there is a little poetry in "all the colors of the rainbow" as applied to Scottish foliage, even in the zenith of its autumn brilliancy; but here, as every observer knows, especially in the mountainous districts, where sugar maples abound, the expression needs no poetic license. Almost all these colors may be found in this single species, to say nothing of the birches, elms, ashes and oaks, with their less varied tints. European travelers tell us that it is worth a voyage across the Atlantic to behold the splendors of the ripening foliage of our forests. The linden has been used, but I do not recommend it, it being one of the latest in producing the foliage in springtime, and one of the earliest to shed it in the autumn. It, however, may be used in some places, being easily transplanted, and will grow in any soil.

But why not plant the oak occasionally for a street tree? It is true I have not seen a street lined with oaks, but on the outskirts of our forests, and in our cemetery, they do well. The white oak is the noblest of forest trees; the scarlet oak, tall, with rich autumnal tints; the pin oak, tall, symmetrical, a pyramidal tree of rapid growth and glossy foliage. I am told that at Flushing, L. I., there is an avenue planted of this tree, and that it is remarkably adapted for street tree, and for ornamental planting there is an innumerable variety all worthy of a place if you have the room for them. Downing says that there are no grander and more superb trees than our American oaks; they are rich in foliage and grand in every part of their trunks and branches.

And then there is the tulip tree. Where deep, mellow soil can be obtained, there is nothing handsomer. It should be transplanted small; the foliage is clean, light green, and the flowers like a green and orange tulip. It is well adapted for avenues, as also the lawn.

What shall I plant for street shade trees? Do not plant the silver maple or the poplar, simply because they grow fast. In a few years you will regret it, on account of their rapid growth. Slower growing trees, such as the sugar maple, and some may like the horse chestnut or the sycamore, you will find preferable, and these are not too

large for the streets. Plant well, select good, healthy trees, and success will crown your efforts.

These brilliant tints are increased by the peculiar clearness and brightness of the atmosphere. Again, the trees and shrubs of North America are unquestionably the most splendid and beautiful vegetable productions of the temperate climate of the globe. Without the American magnolias, tulip trees, rhododendrons, azaleas, kalmias, vacciniums, andromedas, and other ornamental plants, not to mention numerous other genera, where would be the beauty of European pleasure grounds? North America has indeed supplied more material for ornamental gardening than all the rest of the world put together, and I am glad that we can supply them with these beautiful productions. But will you allow our foreign neighbors to make their homes more beautiful with our productions, than your own? The answer to the question is for you to solve. God bless your homes, and may they all be adorned not only with nature's beautiful productions, but by His abiding presence, and may they all be the happiest of homes.

DISCUSSION.

MR. KNOWLTON. I would like to ask a question of Mr. Barker. In setting out trees with reference to the treatment which he gives them; in the matter of pruning, it is the custom in many parts of our State in setting elms and maples to cut off the top. I do not believe in the practice.

MR. BARKER. I think the Secretary is right in his opinion; when we set out a tree of that nature, like an elm or maple we never prune it, except to prune out the dead wood and some of the short shoots; but we take a great deal of care to prepare the hole thoroughly for the reception and plant it as carefully as we can, never allow it out of the ground but a short time. Mr. Dale of Boston says if you want to spoil a young tree, cut it to pieces when you set it out.

MR. KNOWLTON. Regarding maples, especially the sugar maple, there is a point further which I have observed. The maple does not readily heal over when limbs are cut off, for this reason it is important to have the branches set at a height that will be satisfactory after the tree is grown. Cut out the small limbs as soon as one appears where you will not want it to grow when the tree becomes large. In this way you begin to shape the tree when it is set, and all the strength and growth of the tree are directed where they will the most rapidly develop a beautiful tree.

REPORT ON EXPERIMENT STATION.

Prof. W. H. JORDAN, Director.

I am down here with a note or two on a piece of paper to make my report. I really don't like to be always dealing in *promises* to pay. There are some lines of work that the Station has undertaken that have brought returns and I have been able to go before the farmers of the State and speak of the things we have *already accomplished* and not always telling what we are *going* to accomplish. But from the nature of the case, I shall have to speak to-day, more or less about the *future*, as well as the past.

You remember our Station was organized in 1888. We had buildings and equipments and many things to purchase and put there before we could go to work; and very naturally, our work was along those lines most talked about;—fertilizing the soil, dairying and cattle feeding;—so perhaps horticultural work may have at first received secondary consideration. I think it did.

Two years ago the Trustees of the College, in their wisdom, I am confident, invited several associations of the State, to send representatives to our Station that they might tell us what we had better do.

The Pomological Society sent the Secretary, who is one of those insistent, persistent sort of men who don't let things alone; and he said, "do something along the line of Horticulture." He didn't seem to come to say we had *better*, but immediately began to enquire how much money we had spent for horticulture; and asked that question all the time. And the Station, although not equipped at that time, began to lay the foundation for horticultural work;—I mean, in its broad sense.

The best thing we have, with the exception of something I will mention later, is our greenhouse. I presume faults can be found in it, but at the same time we think we have erected there a good plant.

That plant house will be used this spring in starting vegetables for the first time. We have a few acres adapted to large and small fruits, and have set between one and two hundred apple trees, a few plums and small fruits, which constitute the foundation for work along the line of fruits.

In the matter of vegetable work, we have done but little. So you see about where we are, and our promise to pay comes from the addition to our organization, the increased facilities at the present time. The word has been, "Go West, young man;" but two or three years ago one of the graduates of the Michigan Agricultural College began to think, (that is my imagination) that possibly there might be something farther East; that somewhere about the sunrise there might be something learned, so he came East as far as New York, and imbibed all he could at Cornell University and then came towards the sunrise. He came to Maine, reversing the old adage, "Go West!" and he said, *go East*; which I commend to the young men of Maine. We have in that man, an enthusiast along the line; and while he is somewhat ignorant of the conditions of the State, I think he means to identify himself with the market garden interests, and takes hold of the experimental work, not only in the interests of the Pomological Society, but in market gardening you will see him later.

Now this constitutes my report for the station. We are just laying the foundation. We have been late about it; I have no promises to make. I want to throw out this, because the experiment stations of this country are already doing a great deal for agriculture. I believe that to be the fact; but we must remember that we are only *one* of the means of progress. Because the experiment station exists there is none the less need of careful work on the part of individuals or active work on the part of associations. The experiment station will simply do a little in the midst of the *great deal* that is to be done. That is all. It has its existence because it can do a peculiar kind of work that the farmer and fruit grower and the associations cannot do:—which is the study of *principles*; the study of foundation facts to reach knowledge, which if reached in other places and other ways, must be reached much more slowly. That is all that can be expected from the work of the station. They simply propose to apply themselves to a careful study of principles and to an extent to practice, in the various lines in which they are at work.

HORTICULTURAL WORK AT THE STATION.

By Prof. W. M. MUNSON.

Like Prof. Jordan I came down to learn, rather than to talk. As Prof. Jordan said a few moments ago, I have been coming East for several years. I used to think when I was considerably younger that I should follow Horace Greeley's advice; my ideas turned in the direction of Kansas, but as I studied horticulture the opportunities for work in that line, seemed unparalleled in the East, and the farther East I came the greater the opportunities for work, seemed. The quality of Maine fruits is recognized as superior to any other in our country and glancing over the fruits here to-day one cannot fail to realize the superiority both in appearance and quality.

With regard to the work at the Experiment Station; it is not a good plan to commence by making a big splurge, telling what we are *going* to do; but in the future I shall hope to have the pleasure of meeting with you many times and of telling you what we have done and are doing.

We hope to make horticulture an important feature of the work there, and shall to a large extent follow out the lines undertaken by the State Society, that is, we shall make a special effort to improve the facilities and extend the area of fruit culture in the State; to develop new and hardy varieties, both by selecting those varieties which seem promising in other, colder regions of the country; by crossing, hybridizing some that shall be hardier.

This work cannot be done alone at the Experiment Station. It will necessitate the co-operation on the part of fruit growers throughout the State. We may determine the best fruits for Orono, but not in Aroostook county. The State Pomological Society will be a great aid and we hope to aid the Society in its noble work. We shall also hope to aid in the discovery of remedies for the various insect and fungous enemies of our orchards and gardens; but as you know, reliable information cannot be obtained in a single day or year. We shall endeavor, in our work, to go carefully; do our work thoroughly; not to announce results until we are satisfied that our conclusions are correct. Thus we shall avoid misleading any who may follow our work.

As Prof. Jordan said a few moments ago, we shall aim to determine laws and principles, rather than facts. A *fact* can be such,

only under certain conditions ;—a *law* is universal. Laws control conditions that make facts possible here as applicable at Caribou, Portland or Texas.

The value of work at the Experiment Station will depend much upon the attention they pay to the determination of laws, rather than individual facts. We shall hope to reach many of the farmers of the State, through their sons.

Our President has said that he thought much of the value of horticultural instruction given to the children ; but we have children of larger growth at the college, who by precept and example hope to encourage the practice of horticulture in our young men.

REPORT OF OUR MEMBER OF THE COUNCIL.

By D. H. KNOWLTON, Representative of the Pomological Society.

It has not seemed necessary to your representative to make an extended formal report at this time. The general outline of the Station work in fruit and horticulture was presented to you last year. In addition to this it is a pleasure to state at this time certain matters in connection with the work of the Experiment Station and the State College. By recent legislation of Congress the State College, in addition to other funds available, will receive from the general government \$15,000 as the first annual payment, and each year thereafter the sum will be increased by \$1,000 until the annual stipend reaches the sum of \$25,000. As the college and station are closely associated together, that which increases the efficiency of the former will also add materially to the extent and character of the work done by the latter. So far as can be judged at this time, it is the purpose of the trustees of the college and the faculty to extend the curriculum in the college so as to give a broader scope to agriculture and horticulture. The foremost men engaged in these pursuits are earnestly urging the college authorities to this action, and it is gratifying to note the extent of the new course outlined. As these will not go into full effect until next autumn, it now remains to be seen how fully the people will endorse the action of the college.

The greenhouse erected by the State, is well equipped and is now ready for work. This will be in charge of Prof. Munson, who comes to the Station from the West well prepared to engage in the great undertaking in the interest of horticulture.

There have been two meetings of the council during the year, but circumstances prevented my being present at the April meeting. It was my pleasure, however, shortly after to meet Prof. Jordan and to confer with him in regard to fruit matters at the Station. In this connection it is gratifying to note that Prof. Jordan and his associates are earnestly trying to do all that it is possible for the interests of the great objects represented by the Pomological Society.

As yet in the matter of fruit culture and horticulture, I will say simply this; that I am not satisfied; but I will qualify it by saying, that nothing [could be done within the short time that the Station has been at work that would satisfy me; because in this practical world of ours, I have always looked at results, immediate and abundant, as connected with enterprises as the great desideratum; but I will say that there are at work in the institution a corps of interested and devoted men; men whom I consider well qualified and desirous of doing the work which the agricultural interests of the State need to have done; but at the same time we shouldn't go to sleep over the matter and think that these gentlemen, however good they may be, are going to do what we want them to, unless we show them that we are interested in the object, and sort of look after them and see that they do it.

There is one matter suggested by the paper of Mr. Nutting and it is this—the consideration of varieties adapted to those sections of the State where fruit growing has not yet become an established industry. It is a work which has been begun and I hope it may be successfully developed. It is one of the problems which we want the Station to aid in solving.

There is still another although I have spoken of it before, which is this: I do not believe yet that we have got the utmost perfection in our fruit. To be sure the specimens spread out here, are very handsome, but I think there is not a variety on this table that has *all* the excellent qualities combined. We have the Baldwin which is good for the market but not as good as the Northern Spy for the dessert.

Now the work of the Station which we hope may be carried out, will be to take the excellent qualities of the two and other varieties and by crossing them up produce new varieties that shall possess *more* excellent qualities; so we may not only grow the handsomest fruit in the country, but also grow the best in every respect. It is one of the problems propounded to Prof. Munson as the representa-

tive of the work which is to be done there. It is full of difficulties, but the object to be achieved will warrant any amount of expenditure of means and labor, if only we can gain it. Certainly we shall not unless we undertake it.

There are many things that we bring up for discussion when we get together in an advisory capacity, and if you as fruit growers in the State or as horticulturists in any direction, desire any particular thing done there, by all means let either your representative or the Station itself, *know* it. They may not be able to undertake every experiment you want tried, but they can undertake some things if they dig into it as they ought and they will get valuable results out of it for us.

DISCUSSION.

Prof. MUNSON: I do not intend to come before you this afternoon to make promises; but I want to emphasize what Mr. Knowlton has said; that if you have work you want done, the only way we can know it, is for you to make yourselves heard. We cannot, at the Station meet the wants of the people, unless we know what those wants are. We cannot reach all the results in a year; we cannot undertake experiments which shall be of value to the people of the southeast part of the State and in Aroostook county at the same time, but those matters which are of interest to the people of the State will receive attention; it is the object of the Station to aid in building up horticulture in the State, and I was glad your Secretary mentioned the matter of improving the qualities of fruits. That is a very important branch of work; this combining beauty of form and color with delicious quality; combining good qualities of any fruit. That will require much time, but it is a work we have planned. I had not said anything about it to the Secretary but it is in my mind; the improvement of qualities of fruits, both orchard and small fruits, by crossing, by hybridizing. This has been worked upon but little, but is of great promise to the horticulturists of the State.

Mr. KNOWLTON. There is one thing further I wish to emphasize. It is, that although the experiment which you want undertaken may seem difficult and expensive, you need not hesitate to ask it just the same, because the institution has funds for particular purposes and it is right and proper and just that those interested in this branch of agriculture or any other branch of agriculture should ask that the problem be undertaken, and if *possible* solved. I speak of this,

because some of us, in our peculiar notions, might be modest about asking for what we want. If we do not ask, we may not receive.

Prof. Cook. I am glad of the opportunity to speak upon this subject because it comes home to all of us. The farmers of Maine are elated for two reasons. One is, that their agricultural college, in which they have so much interest, has lately received funds; and you well know that funds in the right hands will accomplish much for the agriculture of Maine, and the farmers are looking to the Experiment Station for great results and they will not be satisfied with any *ordinary* results. They want, they must have great results from that Station, because it is an interest so important to every home; so important to every farmer in the State. We are elated also at the grand possibilities of fruit culture. These interests are to be increased by work at the Experiment Station.

Fruits have enemies; they must be met and overcome. It is the Experiment Station that will help us to overcome these difficulties. We have great confidence in the professors of that institution; we think they have the ability, and the earnest *love* for the business, that is worth as much as the ability itself. We trust and believe that the sons of the farmers will be inspired with love for the grand occupation of the soil. If the professors there have a grand love for it, they will impart it whether they know it or not. Teachers impart to scholars what is in them; it is imbibed by the student. I have heard it said that boys go there and have but little care for that course. I trust this will be largely overcome by the professors there. They are going to do their whole duty in this matter and I trust that not only the head professors will be earnest in the matter, but their assistants will be of the right kind. As much depends upon the assistants as upon the head professors. Let us be determined that the college shall have all the funds it needs as long as it uses those funds intelligently.

I assure the professors that we are perfectly satisfied that we have the right men in the right place; we have great confidence in them and because of that, we expect great results.

Mr. BARKER. I visited the State College and was interested in going there, though I could not see anything but the buildings and location; but I thought it was all that could be desired; there is plenty to develop; there is room to grow, and experiment and illustrate.

With what has been said by the gentlemen here this afternoon of the earnestness of the professors, I hope you will back them by say-

ing kind and encouraging words, and then I think they will get along nicely ; but I want to impress upon your minds that you must not expect them to succeed every time. If they make a failure, say a kind word and ask them to try again, and I believe they will do it because others have done it. Let me illustrate ;—when I first went into the Massachusetts Horticultural Society I had the care of a large orchard garden and I thought I would wipe all those fellows out. I took a collection, bigger than you see on that table, and when the committee come around, what did I get? I didn't get anything. I didn't say a word, but I made a careful comparison and saw my mistake. I wouldn't take \$1,000 for that failure ; because it was a life long experience to me.

We have near Forest Hill Cemetery an arboretum. I think it is the finest I have seen ; there is everything grown under name. The name is printed in English and under that the Latin name, and you can go in at any time and see every tree and shrub that can be grown in Massachusetts right there. One of the benefits of that is this. Perhaps you don't have the tree peddlars in Maine ; we do in Massachusetts and they come along with chromos and bewitch everybody, and they buy from that chromo and get badly disappointed. Since I have been at Forest Hill Cemetery, people come and ask what they can ornament their gardens with and I direct them or take them over to the arboretum and if I can find Mr. Dawson he goes around and they put down just what they like and know what they are going to order. They can see it growing right before them. Why cannot the Experiment Station have something of the kind up there? It will add great interest to the institution and be a safe and certain guide to the people of Maine showing what they can grow in their gardens and houses. You can buy seed and get a good selection of the hardy plants. I sent a small order to London for five dollars and you would be astonished to see what a long list it was. We could have the plants themselves but I didn't want them because I could sow those seeds and grow plants, and from there put into boxes and from the boxes to the bed or to the place where they are going to stand ; and I can see them develop to the plant full grown. That is why I am so interested. I want to see them grow myself.

There is another department which I am extremely interested in just now, and that is the cultivation of evergreens. I think you can have most all kinds we have in Massachusetts here in Maine. We have a little propagating house on the place. It is divided by a

partition, one-third cold part and two-thirds warm. In this cold part I have 13,000 cuttings of evergreens, from twenty to twenty-five varieties. These 13,000 cuttings were put in between the 12th and 14th of December. We have succeeded so far, they are now in a callous condition, just throwing out roots.

Among other things we have the Andromeda. The little cuttings are only about five feet high, and since the 4th day of December they are so firmly rooted, you cannot pull them up and lately they are covered with a tiny white flower; and that isn't all; there is a suggestion comes from that. If those little cuttings will flower so beautifully now, when we get the plant to growing it will be glorious. If this should be of any benefit to the gentlemen who represents the college, I shall be glad. But there is no end of instruction in that department. There is a place to begin but no place to leave off. I thought thirty years ago that I knew it all, but now I know that if I put down what I *don't* know, it would be much more than what I *do* know.

MR. GILBERT. Mr. Barker has kindly made a most important suggestion, therefore I take courage to make another but in a different direction in connection with this work. I have learned from experience through a number of years, the importance of testing varieties of fruit. In the introduction of fruit into the State, I think that has been one of the most important matters. Lack of knowledge in that direction has been the source of a vast deal of loss through the unproductive results that have come out of this lack of knowledge on our part. Aroostook county is just entering upon the work of fruit growing; they don't know much about what is adapted to the climate. I will say that the orchard, represented by Mr. Nutting's paper is located at a point farther north than any other orchard in the United States and with a very satisfactory degree of success because he had planted varieties that have proved suited to the locality.

Here is a matter that the Station may take hold of and assist in that direction and be of great aid to that department of agriculture. Years ago they caught on to the idea of importing fruit trees from Russia. They made a great mistake in setting scions and cuttings in the gardens of Washington when just adapted to Aroostook county. I believe it is a matter that this society has a right and it is their duty to call the attention of the Station to the fact that measures should be taken to test varieties in that locality for the benefit

of that locality. The necessity does not obtain with us, but there, it does. I think the Station can do a great work for the fruit interests of that locality.

Mr. MERRITT. I am delicate about speaking of that, but want to say, that for our soil and climate experiments must be made on the ground. There are more plum trees in Aroostook county than in the State of Maine. More commercial trees than in the State of Maine. One man set out 1,000 of Moore's Arctic variety. They are the only tree we can make successful; or they are more so, we say, than any other tree in the State. All these things need trying; I have tried various kinds of small fruit and apples, and others have tried. Some die from neglect, but more from misdirected efforts like pruning and setting out. Little systematic work has been done. I would speak of where our fruit culture differs from that in other parts of the State. The experiments there are not only with varieties that are hardy, but varieties that will be a profitable and keeping fruit. From my knowledge of the plum raising, I think there is no place so well adapted to plum culture as the Aroostook county.

This fruit growing is in its infancy in our county; we need more encouragement. Experimenting means expense. Varieties that you have on these tables, not any of them will grow in our county, unless the Wealthy will; but we have apples that can be raised there, particularly of the Russian varieties.

In setting out the trees which the Station sent me, fifty-four varieties of trees, I made every one of them live. Suppose one-fourth of these trees turn out valuable trees; I have raised four trees to get one, and I can set out trees that I know to be good instead of having one-fourth of an orchard; so I consider the value of these young trees to be very slight and I propose to experiment on my own hook unless I can get my pay.

Mr. KNOWLTON. In conversation with Professor Balentine, he informs me that arrangements have been made by the Station to compensate parties in this matter of experiments and those who are necessarily at expense of time and labor will be paid. They do not intend to ask men to do work for them without compensation. I don't suppose they intend to pay fancy prices for services but they mean to furnish material and pay a reasonable compensation for undertaking the work.

CONDENSED FRUIT LIST.

As a convenience to those who may wish to consult it, the following condensed fruit list is re-published from last year's transactions. There are many new varieties offered by the nurserymen, some of which we know to be good, but they have not been sufficiently tested in Maine to deserve a place in our list. It is hoped that fruit growers of the State will report on the new varieties they are testing, that others may have the full benefit of their experience. Many are deserving of trial, but for this purpose there is need only of a tree or two; or better still a few scions set on older trees will soon give the information we desire regarding them. Those printed in *italics* are considered the best in quality and those followed by a star (*) are the most profitable.

APPLES.

SUMMER—Duchess of Oldenburg, *Early Harvest*, Golden Sweet, *King Sweet*,* Large Yellow Bough (sweet), *Red Astrachan*,* *Russell*, *Tetofsky*, *William's Favorite*.*

AUTUMN—Alexander, *Deane*, *Fameuse*,* *Garden Royal*, *Gravenstein*,* *Munson Sweet*, *Porter*, *Pound Sweet*.* Wealthy.

For trial, Montreal Peach, Somerset, Gloria Mundi.

WINTER—Baldwin,* Granite Beauty, Harvey Greening, *Hubbardston Nonsuch*, *Jewett's Fine Red*, *King Tompkins*,* *Milding*, *Rhode Island Greening*,* *Rolfe*, *Stark*, *Talman's Sweet*,* *Yellow Bellflower*, *American Golden Russet*.

For trial, McIntosh Red, Minister.

LATE WINTER—*Northern Spy*,* *Roxbury Russet*.*

AROOSTOOK COUNTY—From reports received there are several apples that thrive here, among which are Red Astrachan, Duchess of Oldenburg, Fameuse, Alexander, Wealthy, Yellow Transparent. The Dudley is recommended by those who have tested it as well as the Montreal Peach.

PEARS.

SUMMER — *Bartlett*, Brandywine, *Clapp's Favorite*, Osband's Summer.

AUTUMN—Belle Lucrative, Beurre Superfine, Eastern Belle, Goodale, Louise Bonne de Jersey, Nickerson, *Seckel*, *Sheldon*.

WINTER—*Beurre d' Anjou*, Lawrence.

PLUMS.

Bradshaw, Greely, *Green Gage*, Jefferson, Kingston, *Lombard*,* *McLaughlin*, Moore's Arctic, Niagara, Pond's Seedling, Prince's Imperial Gage, Purple Gage, Rivers' Blue Prolific, Shropshire Damson,* *Washington*, Yellow Egg.

CHERRIES.

Black Heart, Black Tartarian, *Common Native*, *Early Richmond*, Governor Wood, Mayduke, Ox Heart, Rockport.

THE SMALL FRUITS.

STRAWBERRIES—*Crescent*,* Downing, Kentucky, Manchester,* *Sharpless*, Wilson. The following are recommended for trial,—Bubach,* Pineapple, Ohio,* Belmont, Haverland,* Cloud.*

Those in *italics* are early, and those marked with a (*) are pistillate and require some of the perfect-flowered varieties set near them to pollinize the flowers.

RASPBERRIES—*Red*—Cuthbert, Turner; *Yellow*—Golden Queen; *Black*—Gregg. Ada and Carmen are recommended for trial.

BLACKBERRIES—Agawam, Snyder. For trial, Bangor and native varieties. It is thought by some fruit growers, that the influence of cultivation upon our best native varieties, selected for quality will give us something hardy and of good quality.

CURRENTS—*Red*—Fay's Prolific, Red Dutch, Victoria; *White*—White Grape; *Black*—Lee's Prolific.

GOOSEBERRIES—Downing, Houghton Seedling. Smith's Improved and Industry are recommended for trial.

GRAPES—Brighton, Champion, Delaware, Hartford Prolific, Lady, Moore's Early. True's Early, a Maine Seedling, is recommended for trial.

From T. S. Hubbard & Co.'s pamphlet "on Grape Vines and Small Fruits," we select the names of a few of the earliest grapes, and arrange them in the order of earliness; those printed in *italics* are regarded by them as the best in quality; the figures refer to hardiness of foliage and vines, the lowest numbers being the hardiest. Several published in their list are hardier but are later, hence none in the list are hardier than those marked "2."

Jessica (3), Champion (3), Dracut Amber (2), Moore's Early (2), Cottage (2), Lady (3), *Lindley* (4), Massasoit (4), Hartford (3), Hayes (3), Worden (2), *Brighton* (4), Wyoming Red (2), *Salem* (5), *Delaware* (3).

THE SECRETARY'S PORTFOLIO.

CONTAINING

Original and Selected Scraps, Contributed by Maine
Fruit Growers, and Collected from Various
Sources.

THE SECRETARY'S PORTFOLIO.

WILLIS O. TOWLE.

Willis O. Towle of West Gardiner died at his home in that town September 26, 1890. Your Society has never had a more enthusiastic member on its rolls. He was stricken down while exhibiting fruit (in City Hall, Bangor, 1889) with heart trouble from the effects of which he never fully recovered. At the time of his death he was connected in trade with his brother and also with his father in the management of his extensive farm and orchard business. He was not quite twenty-eight years of age at time of death, but his enterprise had given him an acquaintance not usual to one of his years. Before he was engaged in trade he worked six winters for E. Plimpton & Sons in the manufacture of agricultural implements interesting the kind regards of his employer by his skill and industry, devoting the summers to fruit culture and the business of the farm.

D. P. T.

HENRY S. CARY.

We also note the death of Henry S. Cary, of Topsham, one of our most enthusiastic fruit growers. In recent years he has been a regular exhibitor at our fairs. He was well informed in all matters pertaining to fruit culture. At the fairs he was a close observer of varieties, and few gained more knowledge from these annual gatherings. He was also free to impart any information he had gained from his own experience in fruit culture. He will be long remembered by the members of our Society for his enthusiasm and his cordial greetings.

FRUIT GROWING IN AROOSTOOK.

From Hon. E. E. PARKHURST, Maysville Center.

We are making some advancement in new hardy varieties also in cultivation. The Duchess is our best and safest fall variety. We ask for nothing better for cooking or drying, but for dessert it is not of much account. The Yellow Transparent is equally as hardy and is our earliest, and we consider it *very good*. The Wealthy is hardy and productive, but for a dessert apple cannot recommend it as highly as Dr. Hoskins does. He claims it to be equal to the Baldwin in every respect. For me the flavor is not so good and it is too tart. It is a valuable apple and we can grow them cheap and any quantity of them. I stopped over night last week with J. W. Dudley of Castle Hill and for the first time tried his Dudley Winter. This apple grows as large as the Duchess, resembles it in color and form, is as hardy and productive, is superior to anything I have ever tested as a dessert apple. If it continues to grow and mature as it has this season we shall have no use for Baldwins in Aroostook. It is the coming apple in all cold climates.

This comprises the list as I consider it of anything valuable we have for Northern Aroostook. I have in my orchard the Alexander, Fameuse, Tetofsky, Red Astrachan, and several other half iron clad varieties, but don't want any more of them. There has been several orchards of Moore's Arctic plums started within three years, averaging from 200 to 1,000 trees. They are layed down in the fall and the deep snows in winter protects them from the excessive cold, which saves the fruit buds. They are commencing to bear and trees set two years yielded one peck plums each last fall. This method of handling will prove a success so far as protecting the trees and growing the plums. I fear only one trouble, that is, the injury of the plums by early frosts before harvesting. So far there has been no trouble, and there may be no danger in the future.

FROM HON. PARKER P. BURLEIGH, LINNEUS.

I set out the first apple trees on my farm about the year 1848. There were 312 in number. I set out native trees raised in a nursery in this county, as it was supposed, at that time, that grafted trees could not be successfully raised in this cold climate. For many years after the trees were set out, I was not much of the time engaged in farming, and my apple trees were neglected, and for many years the grass was removed from the orchard and no manure returned, and when I returned to my farm in the year 1884, the trees presented a sad appearance. There were many hollow hearted and nearly worthless trees, and on others there were many dead and dying limbs. I immediately went to work and removed all the worthless trees and set out young grafted trees. I then cut off all the dead and dying limbs from the remaining trees and covered the wounds with gum shellac. I then grafted one-third of the top of each tree selecting the highest limbs. The next year I grafted another third of the tops, selecting the next highest limbs, and the third year, in 1886, I grafted the remaining third or lowest limbs. I have pastured sheep in the orchard every year since I commenced grafting the trees, and have applied a small quantity of wood ashes, salt and lime, and the trees are growing rapidly and none have been winter killed, with the exception of the Rhode Island Greening, Baldwin and Sweet Greening which are too tender for this cold climate.

The varieties I have now growing in my orchard are as follows :

Wealthy, Canada Red, Winthrop Greening, Fall Harvey, Summer Sweeting, Gideon, Summer Russet, Pewaukee, Yellow Belleflower, Golden, White Belleflower, McIntosh Red, Scott's Winter, Sweet Greening, Yellow Transparent, Black Oxford, English Russet, Magog Redstreak, Golden Russet, Granite Beauty, Red Astrachan, Leonard Sweet, Talman's Sweet, Rhode Island Greening, Fameuse, Golden Russet, Blue Pearmain, Ben Davis, Northern Spy, Tetofsky, Duchess of Oldenburg, Nodhead, Alexander, Nonsuch.

All of the trees grafted with the above-named varieties withstand the winter and are not injured by the cold with the exception of the three varieties I have named. I have also several pear trees of the

Flemish Beauty variety, and have for several years raised as nice pears of that variety as I ever saw, until last year they cracked badly for the first time. The trees appear to be hardy and do not winter kill.

Since I commenced renovating my old orchard in 1884, I have set out more or less grafted trees every year, and have now about 450 grafted trees. Many of the grafted trees set out since that year have borne fruit. I have set in all a little more than nineteen thousand scions in my orchard since I commenced grafting in 1884, and have set all of them myself, with the exception that I had a man to help me fourteen days in 1884. I did not sell much fruit after I commenced grafting my trees till the year 1889, when I received ninety-two dollars from the sales of apples. I have not yet sold all the apples raised last year (1890), but shall probably receive about sixty dollars.

TOO MANY VARIETIES.

From H. G. COLE, of Hall & Cole, Boston.

I see by the Lewiston Journal, you meet at Bangor next week to talk over the fruit business. I wish I had gab enough to go and tell the growers what I know about growing too many varieties. Last season it did not make much difference how many kinds they had, but if the time comes when there is a full crop they will be sorry. Wipe the Black Oxfords from the face of the earth if possible. We cannot sell a No. 1 Black Oxford to-day for as much money as we sold Mr. Whittier's No. 2 Baldwins for this week.

ORNAMENTATION OF HOME GROUNDS.

From J. B. STEARNS of Norumbega Castle, Camden.

Although I have in a sort of "rule-of-thumb" manner, made my grounds here look fairly well with some help at first from Mr. Ernest W. Bowditch of Boston, I am sure they would not bear the criticism of a professional landscape gardener, and I am also sure that no one can be more ignorant of the *right way* to lay out and ornament grounds than I am. As for a paper "on the ornamentation of home grounds" it seems to me that grounds vary so much in extent, inclination, surroundings, etc., that even a trained landscape artist could hardly say much of *general* application. If I should presume to give any hints on this subject, I should say :

1. The best grass, well kept, is the best and safest dependence.
2. Be rather sparing of flowers, unless in masses of one kind, or a few kinds.
3. Grade all slopes evenly as possible and make few or no sharp terraces.
4. Set shrubs and vines near, or on the house, but trees at some distance, if at all.
5. Distribute such large ornaments as summer houses, hot-houses, large vases, fountains, etc., so that they shall never be in one line of view, and if possible so that they shall not all be seen at any one time.
6. All buildings and ornamental features of considerable size should be placed at generous distances from each other—the larger, the greater the distances. Of course this implies large grounds.

It is easy, and the temptation is great, to crowd in too many trees, shrubs, and flowers. If one wants many flowers and small shrubs, give them their own places, in a separate garden, but one will be safe in laying out large lawns of the best grass that can be easily and cheaply kept in *best condition*. Many small flower-beds, small shrubs, etc., placed separately in the grounds, give them a spotty appearance. A few kinds in large masses always look well.

Even these few hints, I offer with hesitation.

THE DIVISION OF POMOLOGY.

Remarks made by HENRY E. VAN DEMAN, Pomologist of the Agricultural Department, Washington, during the State Fair Meeting, September 11, 1890.

It is my duty as well as pleasure to see the different sections of the country in regard to the adaptability of each section to different kinds of fruit. This year, as you know, the great staple fruit article of the country is a flat failure. There will not be raised this season one-tenth of the crop of an average year. There are few sections where the crop is worth mentioning, the best crop being in Northern Missouri. This State (Maine) is the only section of the Northeastern United States which will produce even a fair crop of apples, therefore you can pride yourselves that the small and insufficient crop you have raised in Maine is almost the best in the United States, excepting of course that in Missouri, which I have already mentioned. The cause or the failure of the crop this season was this, a mild winter followed by an early spring, causing the trees to bud early, then came on the long cold rains that stopped the growth of everything, and caused the trees to blight.

Here in Northern New England as in other sections of the country, you escaped part of these effects on account of a more tardy spring season, in consequence of which the buds had not started so much when struck by the long cold rains, as in other more southern parts of the country. In this section you have many things to contend with that those in other parts of the country do not. For instance, you are much given to setting Russian trees, and Russian apples are of very poor quality. But you can with reasonable industry and intelligence, raise about all the fruit that you need. There is a class of fruits that you can grow a great deal better here than in many sections of the country. I refer to small fruits—the blackberry, gooseberry, raspberry, strawberry, etc. These are well adapted to the climate of Northern New England. No one has a reasonable excuse for not raising all he wants of these berries. There are certain obstacles, too, in the form of insects and plant diseases. The Department of Vegetable Pathology seeks to aid the people in overcoming these, and your own experiment station and agricultural college are working in the same direction. If you do not keep informed in regard to these matters it is your own fault. One thing

which is very troublesome to you is the plum disease known as black knot. This can be overcome to a great extent by simply paring off the knot and then covering the limb with linseed oil, turpentine or shellac to kill spores. The parts cut off should be carefully burned.

There are myriads of microscopical germs floating in the air which collect upon the limb and form the fungous growth. Then there is the disease known as grape rot. In this section it is too cool for this and the germs which produce this disease don't propagate so readily. Sulphate of copper mixed with lime and ammonia made into a wash destroys these germs, and is an effective remedy.

The duty of the division of which I have charge, is to aid the fruit grower by obtaining information in regard to the names of fruits, to gather knowledge in regard to the fruits themselves, but we have no means of gathering statistics. It requires eighty men to run the statistical part of the Agricultural Department, with salaries ranging from \$800 to \$3,000 per year, besides about 100 agents in the field, and to undertake to gather statistics in regard to fruits would be still more difficult.

I will say in my official capacity, I will be glad to do whatever I can do to aid you if you will address me at Washington. No doubt many of you have varieties of fruit of which you do not know the names. If you will send me a card at Washington, I will send you government franks and boxes prepared for the purpose, so that you can send us specimens and we will do what we can to furnish you the information required.

A great many circulars have been sent out by the Pomological Department asking for information in regard to how fruits are doing. We want to know of the successes and of the failures. All of the members of this society are already registered in my department at Washington, and we will be glad to have all whose names are not upon our permanent list for receiving whatever information we have to give from time to time, to place them there at once.

INSECTICIDES AND FUNGICIDES.

So seriously are our fruits affected by insects and fungi that from all parts of the State there comes frequent calls for reliable information. Mr. A. E. Andrews writes, "What shall we do with our orchards? The percentage of No. 1 fruit is small in comparison with what it was a few years since, and in quality even, these are inferior to the standard of former years." Although much of the present knowledge of the various remedies for insects and fungi has been published in former volumes of our Transactions, the importance of the subject warrants giving space to the following resumé of a paper delivered before the Massachusetts Horticultural Society by Prof. S. T. Maynard, of the Massachusetts Agricultural College :

Bordeaux Mixture—Six pounds of sulphate of copper are dissolved in two gallons of hot water, and four pounds of fresh lime are slaked in water enough to make a thin lime-wash. When both are cooled, pour together, mixing thoroughly and dilute to twenty-two gallons. Strain before using.

Ammoniacal Carbonate of Copper—Three ounces of precipitated carbonate of copper are dissolved in one quart of ammonia, strength 22° Baume. Dilute with twenty-two gallons of water.

Eau Celeste—One pound of sulphate of copper dissolved in twenty-five gallons of water.

Modified Eau Celeste—Two pounds sulphate of copper, two and one-half pounds carbonate of soda and one and one-half pints of ammonia (22° Baume). Dilute with twenty-two gallons of water.

Kerosene Emulsion—One pound common soap dissolved in hot water; one gallon kerosene. Stir or churn together until a smooth, butter-like substance is formed. Dilute with twenty-five to fifty parts of water.

Kerosene Paste—Mix kerosene with any fine dry material or pigment, forming a thin paste or thick paint. Apply with a small brush.

INSECTICIDES. In the discussion of insecticides I have mentioned only Paris green among the arsenites, from the fact that reports from all sources agree that it is less injurious than London purple, and that white arsenic is too dangerous a material to have about where it might easily be mistaken for many harmless substances of a similar color.

SPRAYING PUMPS. Many forms of pumps are now to be found in our markets adapted for the application of the fungicides and insecticides. Of those most in use perhaps the best known are the "Field's Perfection," made by the Field Pump Company, Lockport, N. Y., the Gould pump made at Seneca Falls, and the Mixon, made at Dayton, O., all of which can be attached to casks and placed on a stone boat or wagon.

The knapsack pumps, which are serviceable for small garden plots and small vineyards, would be more useful if some means were provided for filling them without removing them from the back every time. The Excelsior Knapsack Pump, made by William Stahl of Quincy, Ill., is made after a design, I understand, that was sent out from the Agricultural Department last spring.

The French use such pumps very largely, but Americans will make little use of them where much work is to be done, when the horse can be made to draw the liquid for them.

NOZZLES. A nozzle to distribute such liquids as the Bordeaux mixture must have an adjustable opening at the end. Among those to be found in our market are the "Perfection," the "Nixon," the "Cyclone," the "Vermorel," and many others. Professor L. H. Bailey of Cornell University has contrived a clamp, which is attached to the end of a common rubber hose, by the pressure of which the size of the opening is quickly adjusted. Whatever the nozzle used, it must be attached to a long pole to distribute the liquid most evenly at the top of high trees.

Many interesting facts have been brought out in the work of the many experiment stations of the country, the most important of which are mentioned here.

It seems pretty well settled that of the arsenites, Paris green gives the best results as an insecticide.

That the longer the mixture containing the arsenites stands the greater the injury from soluble arsenic.

That the foliage of the peach, plum and cherry is more susceptible to injury than that of the apple and pear.

That the injury varies with the varieties, some being more susceptible than others.

That young leaves are less injured than those fully developed, and are more injured on weak trees than on those that are vigorous and healthy.

That Paris green cannot be used alone with safety stronger than one pound to three hundred gallons of water, but with the lime mix-

tures it may be safely used at one pound to from fifty to two hundred gallons.

That the foliage is most injured when kept constantly wet by light rains or foggy weather, but that heavy rains lessen the injury.

That the least injury is done when the liquid dries off most rapidly.

That the time of day when the application is made is unimportant.

The conclusions of this paper I have arrived at after a careful summary of the experiments made at the college and a careful study of those of all of the other stations of the country and I feel confident that as soon as we master the details of the application of the two great remedies, Paris green and copper solutions, so as to understand the exact time and quantity to apply under varying conditions, we shall be able to control the insects and fungi attacking our fruits as well as we now control the potato bug.

THE PLACE OF FRUIT IN THE DIETARY.

A recent issue of the "Medical Classics" contained an article on the eating of fruit, by Dr. Ferdinand Seeger, that is most suggestive of thought. He says: "It is an observation not less important than true, that by attending merely to a proper diet, a phlegmatic habit may frequently be changed into a sanguine one, and the hypochondriac may be so altered as to become a cheerful and contented member of society. Experience and observation show that a too frequent and excessive use of animal food disposes the fluids to putrefaction, and, in sanguine temperaments especially, communicates to the mind a degree of ferocity. Nations subsisting chiefly upon the flesh of animals, like the Tartars, are, in general, more fierce than others; and the same effect is manifest in carnivorous animals; they emit a very disagreeable smell, and both their flesh and milk have an unpleasant and repelling taste. Even an infant will refuse the breast when its nurse has eaten too much animal food. Those who eat great quantities of meat and little bread and vegetables must necessarily acquire an offensive breath. It appears, therefore, to be most suitable and conducive to health to combine animal with vegetable food in due proportions."

The proportion of vegetables to meat eaten by each person, Dr. Seeger says, should be two-thirds or three-fourths vegetables to one-third or one-fourth meat. Dr. Seeger gives several authorities

for the eating of fruit at the commencement of the meal. He says: "The eating of fruit at the commencement of a meal, while it presents a bland or congenial material to the delicate lining of the membrane of the alimentary organs, forming a welcome precursor to the more substantial articles, many of which require protracted energy for their elaboration into nutriment, at the same time is, to some extent, a safeguard against the overfeeding which comes from reserving the fruits till the stomach is already overloaded with enough, perhaps too much, of other food. Fruits should be ripe when eaten on an empty stomach, and for their laxative effect should be eaten before anything else. In this way constipation may, with many individuals, be obviated, especially when the quantity of other articles of the meal is within reasonable limits."

Constipation is the foundation of many diseases, and the cause of lassitude that depletes working force. This difficulty, Dr. Seeger says, can be removed by attention to the diet. Fruit he highly recommends as a superior regulator, and, in addition, "benefit will be derived from the use of corn bread, cracked wheat, oatmeal, bread of unbolted flour, and such vegetables as green corn, tomatoes, and celery." Biliousness will also yield to careful habits of diet. Dr. Seeger says:

"If our bilious friends would throw aside their liver pills and study nature while she is in her most smiling and bounteous mood, would allow her to tempt them as Eve tempted old Adam, they would take to fruit, and, by pleasant, natural and healthful methods, free themselves of the 'thick, bilious impurities' which make them a nuisance to themselves as well as to all around them. Biliousness is one of those demons that can be pretty well exorcised by proper diet and due amount of exercise. A gentle diarrhœa, brought on by eating ripe fruit in summer, has frequently a salutary effect. Acid and astringent fruit, being rather a medicine than food, is less hurtful to the healthy and to children than is commonly imagined. Instead of being noxious, as some imagine, in inflammatory disorders, it is of the greatest service. Persons of a thick and languid blood cannot eat anything more conducive to health than fruit, as it possesses the property of attenuating and putting such blood in motion."

The diet is the source of health and disease, and while it is in the power of every housewife to select what shall determine the health of the family, it is a subject that receives less study and attention

than any other one subject relating to the family life.—*Christian Union*.

The following is just as good for Maine as Minnesota :

We had canned strawberries for New Years, with the June flavor—rich and aromatic. They were our own growing, so cost almost nothing, and as wife and children were enjoying the delicious fruit, we thought of the many children out on the prairies who never have berries in summer or winter, and we wished there could be more missionaries, and that they would carry the gospel of *small fruit culture* into our Minnesota homes, until every farm should have its berry plat—large, well cared for and fruitful—and the hearts of the children should be made glad and their mouths filled with fruit. Then they might have a little taste of heaven here on earth, for as Uncle Toby says, “there isn’t much room for grace in the heart when the stomach gets nothing but bread and potatoes.”—*Selected*.

CHOICE CULTURE.

The American Newtown Pippin is declared by “The Garden” (English) to be the best apple in the world. When thus written of—March 6—it was still on sale in London, and of high quality yet, after the far voyage and long keeping. This variety well illustrates the advantages of thorough and complete attention to any chosen object of culture on a piece of adopted ground. It must have strong, deep, loamy soil, and must have it all to itself. It must be entirely protected from injury by cattle, insects, harmful pruning and starvation. Its branches and its fruits must be duly thinned, and after the crop ripens it must be cared for as assiduously as the tree. This famous apple has made the fortune of men faithful to it through all steps of its culture, and will make the fortunes of others. But so will other land products if well selected and then well cared for. It is a question for every farmer—“What special thing can I take up and cling to that will yield the most assured profit through a series of years from this piece of ground?”—*W. G. Waring, Sr.*

THE LARGEST APPLE TREE IN NEW ENGLAND.

The largest apple tree in New England, and probably in the world, is in the northwestern part of Cheshire, Conn., standing in Mr. Delos Hotchkiss's dooryard. Its age can be traced by a family tradition to one hundred and forty years at least, and it may be twenty or twenty-five years older. It is at the present time of symmetrical shape; the trunk is nearly round, without a scar or blemish on it; there are eight large branches; five of them have been in the habit of bearing one year and the remaining three the next.

Mr. Hotchkiss has gathered in one year from the five branches eighty-five bushels of fruit, and his predecessor had harvested a crop of 110 bushels from the same five branches. By careful measurement, circumference of the trunk one foot above the ground, above all enlargements of the roots, is thirteen feet eight inches. The girth of the largest single limb is six feet eight inches. The height of the tree has been carefully measured and found to be sixty feet, and the spread of the branches as the apples fall is 100 feet, or six rods.

The fruit is rather small, sweet and of moderate excellence.

ABSTRACTS

FROM TRANSACTIONS OF THE

Maine State Pomological Society,

FOR

1879, 1880 and 1881.

EXPLANATORY.

For various reasons which we will not attempt to explain, no transactions were published for the years 1879, 1880 and 1881. During the winters of 1878-9 and 1879-80 no winter meetings were held. The Society's funds would not admit of publishing the transactions for these years. The Secretary, George B. Sawyer, Esq., prepared the copy for these years, and it was the intention of the officers, as we are informed, to have a single volume printed without expense to the Society. Unforeseen difficulties arose and much to the regret of all the work was never completed. Since that time it has been the hope of the officers that the resources of the Society would admit of its early publication, but as yet the current expenses of the Society call for all the available funds, and this is likely to be the case for several years to come. Copies of the transactions (unbound) have accumulated since 1881, and the officers were agreed that if possible some of them should be bound up for distribution.

Under these circumstances the Executive Committee considered it important to have the missing years included in some form in this year's transactions, and it was voted to instruct the Secretary to publish only so much of the transactions referred to as shall show the organization of the Society and its financial condition during these years—(1879, 1880 and 1881.) For this purpose and with this explanation the following pages have been prepared for the records by the present Secretary. The manuscript, as prepared by Mr. Sawyer, is among the papers of the Society and will be available for future publication.

The annual exhibitions for 1879 and 1880 were held in connection with the annual fairs of the Maine State Agricultural Society; that of 1879 in City Hall, Portland, and that for 1880, in City Hall, Lewiston. The 1881 exhibition was held in Gardiner. The winter meeting for 1881 was also held in Gardiner.

D. H. KNOWLTON, *Secretary*.

Farmington, June, 1891.

OFFICERS FOR 1880, ELECTED IN PORTLAND, SEPTEMBER 18, 1879.

President, Henry Ingalls, Wiscasset; *Vice-Presidents*, Joseph Taylor, Belgrade, Granville Fernald, Harrison; *Secretary*, George B. Sawyer, Wiscasset; *Treasurer*, Henry McLaughlin, Bangor; *Executive Committee*, the President and Secretary, *ex-officio*, Samuel Rolfe, Portland, Charles S. Pope, Manchester, Andrew S. Sawyer, Cape Elizabeth.

Trustees—Androscoggin—D. J. Briggs, South Turner; Aroostook—Henry Tilley, Castle Hill; Cumberland—Henry M. Chase, North Yarmouth; Franklin—S. R. Leland, Farmington; Hancock—C. G. Atkins, Bucksport; Kennebec—W. P. Atherton, Hallowell; Knox—Elmas Hoffses, Warren; Lincoln—John Currier, Waldoboro; Oxford—N. T. True, Bethel; Penobscot—S. C. Harlow, Bangor; Piscataquis—H. A. Robinson, Foxcroft; Sagadahoc—J. H. Kimball, Bath; Somerset—Galen Hoxie, North Fairfield; Waldo—J. W. Lang, Brooks; Washington—H. A. Sprague, Charlotte; York—Edmund J. Young, Acton.

OFFICERS FOR 1881, ELECTED IN LEWISTON, SEPTEMBER 23, 1880.

President, Robert H. Gardiner, Gardiner; *Vice-Presidents*, Joseph Taylor, Belgrade, Stillman W. Shaw, Minot; *Secretary* and *Treasurer*, George B. Sawyer, Wiscasset; *Corresponding Secretary*, Granville Fernald, Harrison; *Executive Committee*, the President and Secretary, *ex-officio*, Samuel Rolfe, Portland, Charles S. Pope, Manchester, Henry McLaughlin, Bangor.

Trustees—Androscoggin—D. J. Briggs, South Turner; Aroostook—Henry Tilley, Castle Hill; Cumberland—Henry M. Chase, North Yarmouth; Franklin—S. R. Leland, Farmington; Hancock—C. G. Atkins, Bucksport; Kennebec—William P. Atherton, Hallowell; Knox—Elmas Hoffses, Warren; Lincoln—H. J. A. Simmons, Waldoboro; Oxford—N. T. True, Bethel; Penobscot—S. C. Harlow, Bangor; Piscataquis—H. A. Robinson, Foxcroft; Sagadahoc—Washington Gilbert, Bath; Somerset—Galen Hoxie, North Fairfield; Waldo—J. W. Lang, Brooks; Washington—H. A. Sprague, Charlotte; York—Edmund J. Young, Acton.

OFFICERS FOR 1882, ELECTED IN GARDINER, SEPTEMBER 22, 1881.

President, Robert H. Gardiner, Gardiner; *Vice Presidents*, Joseph Taylor, Belgrade, Stillman W. Shaw, Minot; *Secretary and Treasurer*, George B. Sawyer, Wiscasset; *Corresponding Secretary*, Granville Fernald, Harrison; *Executive Committee*, the President and Secretary, *ex-officio*, Samuel Rolfe, Portland, Henry McLaughlin, Bangor, Charles S. Pope, Manchester.

Trustees—Androscoggin—D. J. Briggs, South Turner; Aroostook—Henry Tilley, Castle Hill; Cumberland—John Burr, Freeport; Franklin—S. R. Leland, Farmington; Hancock—Charles G. Atkins, Bucksport; Kennebec—W. P. Atherton, Hallowell; Knox—Elmas Hoffses, Warren; Lincoln—H. J. A. Simmons, Waldoboro; Oxford—N. T. True, Bethel; Penobscot—S. C. Harlow, Bangor; Piscataquis—H. A. Robinson, Foxcroft; Sagadahoc—A. J. Fuller, Bath; Somerset—James S. Hoxie, North Fairfield; Waldo—J. W. Lang, Brooks; Washington—H. A. Sprague, Charlotte; York—N. D. Witham, Biddeford.

TREASURER'S REPORT FOR THE YEAR 1879.

DR.

To cash in treasury, Jan. 1, 1879.....	\$ 39 57	
on deposit in Wiscasset Savings Bank	420 00	
amount received from the State for 1878.....	500 00	
of State Agricultural Society.....	230 00	
one life member	10 00	
annual members	32 00	
for interest on deposit	10 50	
	<u> </u>	\$1,242 07

CR.

By paid loan of 1878	\$275 00	
interest on loans	12 43	
orders of executive committee	44 91	
on account of premiums, 1878	180 75	
1879	354 50	
cash in treasury, December 31, 1879.....	30 08	
on deposit in Wiscasset Savings Bank.....	344 40	
	<u> </u>	\$1,242 07

ASSETS DECEMBER 31, 1879.

Cash in treasury.....	\$ 30 08	
on deposit.....	344 40	
Amount due from the State for 1879 *.....	354 50	
Property owned by the society (estimated)	100 00	
	<u> </u>	\$828 98

LIABILITIES.

Amount due on temporary loan.....	\$140 00	
orders drawn and unpaid.....	97 53	
Permanent Fund.....	530 00	
bills not rendered (estimated).....	38 25	
Excess of assets over liabilities.....	23 20	
	<u> </u>	\$828 98

HENRY McLAUGHLIN, Treasurer.

*The amount allowed and paid by the State on this claim was but \$231.00.

TREASURER'S REPORT FOR THE YEAR 1880.

DR.

To cash in treasury January 1, 1880	\$ 30 08	
on deposit in Wiscasset Savings Bank.....	344 40	
received from the State bounty of 1879.....	231 00	
of State Agricultural Society.....	212 05	
life members	40 00	
annual members	29 00	
	<u> </u>	\$886 53

CR.

By paid orders of executive committee.....	\$ 49 88	
premiums of 1880	452 25	
revenue and postage stamps.....	4 20	
Cash in treasury December 31, 1880	35 80	
Amount on deposit in Wiscasset Savings Bank.....	344 40	
	<u> </u>	\$886 53

ASSETS DECEMBER 31, 1880.

Cash in the treasury ..	\$ 35 80	
deposited in Wiscasset Savings Bank	344 40	
Amount due from State bounty of 1880*	452 25	
Property of society, estimated.....	100 00	
	<u> </u>	\$932 45

LIABILITIES.

Amount due on loan	\$140 00	
Interest on same for April 5, 1880.....	6 20	
Amount of orders drawn and unpaid	132 53	
due on Permanent Fund	570 00	
of bills not rendered, estimated	25 00	
Balance of assets	58 72	
	<u> </u>	\$932 45

HENRY McLAUGHLIN, Treasurer.

* The amount allowed and paid by the State on this was but \$281.00.

TREASURER'S REPORT FOR THE YEAR 1881.

DR.

To cash in treasury January 1, 1881	\$ 35 80	
on deposit in Wiscasset Savings Bank.....	344 40	
amount received for the State on account of bounty for 1880...	281 00	
cash received of life members	110 00	
annual members	47 00	
from sale of tickets at annual exhibition	87 60	
fruit at same ..	23 32	
subscriptions	61 50	
donations	11 50	
interest	13 78	
Temporary Loan	200 00	
	<u> </u>	\$1,215 90

CR.

By amount paid interest on loans.....	\$12 60	
orders of executive committee	401 53	
premiums of 1881.....	429 00	
postage stamps	3 34	
cash in treasury December 31, 1881	25 03	
amount on deposit in Wiscasset Savings Bank	344 40	
	<u> </u>	\$1,215 90

ASSETS DECEMBER 31, 1881.

Cash in treasury	\$ 25 03	
on deposit	344 40	
Amount due from the State bounty of 1881.....	500 00	
Property owned by the society, estimated	100 00	
	<u> </u>	\$969 43

LIABILITIES.

Amount due on Temporary Loans	\$340 00	
of unpaid orders	97 53	
premiums.....	120 00	
bills not rendered, estimated	20 00	
Balance, assets over liabilities	391 90	
	<u> </u>	\$969 43

There is due to the Permanent Fund, from life membership fees, \$680 00, which added to other liabilities as stated above makes the total liabilities.....	\$1,257 53	
Deducting available assets.....	869 43	
	<u> </u>	\$388 10

Deficiency

Being the amount required to pay all liabilities and make good
the Permanent Fund.

GEORGE B. SAWYER, Treasurer.

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